MARINE ISOPODA FROM THE CONTINENTAL SHELF OF SOUTH AFRICA

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(With 27 figures and 3 tables)

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ABSTRACT

A collection of marine isopods taken from the continental shelf on the Agulhas Bank in the regions of Still Bay, False Bay, Saldanha Bay, and the southern west coast, is dealt with. Descriptions and figures of two new genera, viz. *Agulanthura* and *Austroarcturus*, as well as fourteen new species are provided.

CONTENTS

INTRODUCTION

As part of a survey of the fauna of the continental shelf of South Africa, the Zoology Department of the University of Cape Town carried out a bottom transect in a line off the coast from Still Bay, Cape. This line extended over the relatively shallow platform of the Agulhas Bank in a south-easterly direction. The samples were taken from the university vessel, the *T. B. Davie*, in June 1972 and May 1973. The bottom fauna was sampled from depths of 15 to 350 metres by means of trawls, dredges, and grabs. The isopods collected were submitted to the South African Museum for identification, together with some samples from False Bay, Cape, Saldanha Bay, Cape, and the southern west coast, thought to have a bearing on the material from the Agulhas Bank.

Fifty-four species, of which fourteen are new, are described in this study; also two new genera.

A discussion of zoogeography, ecology, and distributional patterns for the area will be carried out by members of the Zoology Department, once all the animal groups (most of which have proved to be extremely interesting) have been identified.

The bulk of the collection of isopods is housed in the Zoology Department

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of the University of Cape Town, while all type material is in the collection of the South African Museum.

In the accompanying figures, all dimensions are in millimetres.

SPECIES LIST

The material dealt with in this paper comes from the following localities:

False Bay (FAL) approximately 34°S., 18°E.
Lambert's Bay (LBT) 32.04S., 18.20E.
South coast dredge material (SCD)
Still Bay (SST) approximately 35°S., 22°E.
Saldanha Bay (SB) 33.01S., 17.58E.
Southern west coast (WCD)

Fig. 1. Coastline of the south-western Cape, showing collecting localities.

	Cat. No.	Depth (M)	Substrate
Suborder VALVIFERA			
Family Arcturidae			
Antarcturus kladophorus Stebbing . .	SST.11.D	200	Coarse khaki sand and rock
Arcturella brevipes Barnard . . .	SST.47.Q	30	Coarse sand and shell
	SST.109.Q	30	Rock
Arcturella corniger (Stebbing) . . .	SST.11.C	200	Coarse khaki sand and rock
	SST.96.R	120	Rock and shell
Arcturella lobulata Barnard . . .	SST.96.W	120	Rock and shell
Arcturina hexagonalis Barnard. . .	FAL.487.D	62	Green sand and shell
	FAL.496.O	42	Rock
	FAL.506.I	68	Yellow sand
	FAL.510.U	68	Yellow sand
	FAL.654.T	75	Khaki sand and shell
	FAL.657.E	75	Khaki sand, shell and gravel
	FAL.658.T	87	Fine khaki sand and shell
	FAL.674.X	66	Khaki shell and sand
	FAL.686.X	61	Fine khaki sand
	FAL.702.R	44	Khaki sand
	FAL.706.S	87	Khaki sand
	FAL.798.E	87	Green mud, shell and sand
	FAL.840.H	49	Sand and rock
	SST.101.E	80	Coarse sand and shell
Arcturina scutula sp. nov.	FAL.654.S	75	Khaki sand and shell
	FAL.658.U	87	Fine khaki sand
	FAL.670.B	66	Coarse khaki sand and shell
Arcturina triangularis Barnard . .	SST.61.U	15	Sand and fine shell
Astacilla bacillus Barnard	SST.11.C	200	Coarse khaki sand and rock
	SST.27.U	80	Coarse sand and shell
Austroarcturus africanus sp. nov. . .	FAL.335.D	51	Coarse shell and sand
	FAL.428.P	41	Shell
	FAL.442.E	39	Sand
	FAL.589.E	—	—
	SB.187.J	13	Coarse sand and shell
	SB.270.H	15	Green mud, shell
	SB.304.U	20	Coarse shell
	SCD.243.N	49	Sand, mud, rock
	SCD.293.W	84	Coarse sand and shell
	SCD.337.P	42	Mud
	SCD.339.P	42	Mud
	WCD.206.R	50	Shell
	WCD.211.K	79	Shell, sand, green mud
Austroarcturus foveolatus sp. nov. . .	FAL.760.N	71	Coarse green sand
	SCD.204.E	183	Khaki sand
	SCD.235.C	183	Khaki sand
	SCD.272.O	182	Khaki sand and shell
	SCD.326.E	172	Dark mud
	SST.1.Y	200	Coarse khaki sand
	SST.11.J	200	Coarse khaki sand and rock
Holidotea unicornis Barnard . . .	SST.101.G	80	Coarse sand and shell
Microarcturus laevis sp. nov. . . .	FAL.423.D	48	Khaki sand and shell
	FAL.803.K	75	Coarse sand and shell
Microarcturus ornatus sp. nov. . .	SST.10.H	200	Coarse khaki sand and rock
	SCD.217.R		
Microarcturus quadriconus sp. nov. .	SST.101.H	80	Coarse sand and shell

	Cat. No.	*Depth (M)*	*Substrate*
Microarcturus similis (Barnard) . .	SST.40.J	50	Green mud
	SST.46.C	50	—
	SST.106.A	50	Green mud
Neastacilla tranquilla sp. nov. . .	SST.11.F	200	Coarse khaki sand and rock
Pleuroprion chuni (zur Strassen) . .	SST.11.E	200	Coarse khaki sand and rock
Family **Idoteidae**			
Synidotea hirtipes (Milne Edwards) .	SST.46.B	50	—
	SST.91.V	200	Rock
	SST.102.N	80	Coarse sand and shell
	SST.106.B	50	Green mud
Synidotea setifer Barnard	SST.101.F	80	Coarse sand and shell
Suborder ANTHURIDEA			
Family **Anthuridae**			
Agulanthura serenasinus sp. nov. . .	FAL.487.E	62	Green sand and shell
	FAL.496.L	42	Rock
	FAL.654.N–R	75	Khaki sand, shell
	FAL.685.B–D	29	White shell and sand
	FAL.666.X–Y	26	Sand, shell and gravel
	FAL.763.R–S	56	Fine green sand
	SCD.188.P	97	Green mud
	SCD.329.R	22	Fine sand and shell
	SST.67.S	20	Sand and coral fragments
	SST.74.G	—	—
Apanthura africana Barnard . . .	SST.5.L	200	Coarse khaki sand
	SST.17.E	200	Coarse khaki sand and rock
	SST.31.V	80	Coarse khaki sand and shell
	SST.76.U	15	Coarse sand
	SST.92.B	200	Rock and sand
Exanthura sp.	SST.1.X	200	Rock and coarse khaki sand
Exanthura filiformis (Lucas) . . .	SST.17.D	200	Coarse khaki sand and rock
	SST.21.R	120	Sand and rock
	SST.101.J	80	Coarse sand and shell
Haliophasma cf coronicauda Barnard .	SST.37.K	80	Coarse sand and shell
	SST.101.C	80	Coarse sand and shell
Haliophasma foveolata Barnard . .	SST.8.C	200	Coarse khaki sand
	SST.19.K	120	Coarse sand and shell
Holoroanthura capensis sp. nov. . .	LBT.72.K	400	Sand and clay
	WCD.64.P	128	Green mud
	WCD.109.A	172	Fine dark green mud
	WCD.111.J	141	Dark green mud
	WCD.114.U	183	Dark green mud
Katanthura laevitelson sp. nov. . .	SST.47.K	30	Coarse sand and shell
Leptanthura agulhasensis sp. nov. . .	FAL.673.J–L	66	Shell, khaki sand, and gravel
	SCD.204.B	183	Khaki sand
	SCD.343.Q	121	Sand and shell
	SST.27.S	80	Coarse khaki sand and shell
	SST.31.U	80	Coarse khaki sand and shell
	WCD.77.G	320	Green sand and mud
Leptanthura laevigata (Stimpson) . .	SST.65.M	15	Sand and fine coral fragments
	SST.70.Z	20	Sand
	SST.92.A	200	Rock and sand
	SST.101.K	80	Coarse sand and shell
	SST.114.A	15	Sand

	Cat. No.	Depth (M)	Substrate
Leptanthura urospinosa sp. nov.	FAL.442.K	39	Sand
	FAL.654.N–R	75	Khaki sand and shell
	FAL.666.X–Y	26	Sand, shell and gravel
	FAL.838.Z	5	Sand and rock
	SCD.310.B	50	Coarse sand
	SST.1.W	200	Coarse khaki sand
	SST.19.L	120	Coarse sand and shell
Paranthura punctata (Stimpson)	SST.17.F	200	Coarse khaki sand and rock
	SST.21.Q	120	Sand and rock
	SST.37.M	80	Coarse sand and shell
	SST.96.S	120	Rock and sand
Suborder FLABELLIFERA			
Family **Cirolanidae**			
Cirolana borealis Lilljeborg	SST.57.A	30	Coarse sand and shell
	SST.114.B	15	Sand
Cirolana cingulata Barnard	SST.47.R	30	Coarse sand and shell
Cirolana hirtipes Milne Edwards	SST.27.T	80	Coarse sand and shell
Cirolana imposita Barnard	SST.87.H	350	Rock
	SST.11.L	200	Coarse khaki sand and rock
	SST.91.W	200	Rock
	SST.96.V	120	Rock and sand
Cirolana obtusispina sp. nov.	SST.19.N	120	Coarse sand and shell
	SST.21.U	120	Sand and rock
Cirolana pilula Barnard	SST.68.Y	20	Sand and fine coral fragments
	SST.76.J	15	Coarse sand
	SST.77.W	10	Coarse sand
	SST.114.C	15	Sand
Cirolana virilis Barnard	SST.54.N	30	Coarse sand and shell
	SST.101.D	80	Coarse sand and shell
Family **Sphaeromatidae**			
Cymodoce alia sp. nov.	SST.17.A	200	Coarse khaki sand and rock
	SST.21.S	120	Sand and rock
Cymodoce cf. *umbonata* Barnard	SST.21.T	120	Sand and rock
Cymodoce velutina sp. nov.	SST.20.Z	120	Coarse sand and shell
	FAL.700.R–T	—	—
Cymodocella sp.	SST.21.W	120	Sand and rock
Dynamenella sp.	SST.54.P	30	Coarse sand and shell
Family **Aegidae**			
Aega antillensis Schioedte & Meinert	SST.84.A	200	Coarse sand
Aega monilis Barnard	SST.84.B	200	Coarse sand
Family **Corallanidae**			
Lanocira gardineri Stebbing	SST.21.V	120	Sand and rock
	SST.109.P	30	Rock
Lanocira sp.	SST.91.Y	200	Sand and rock
Suborder GNATHIIDEA			
Family **Gnathiidae**			
Gnathia africana Barnard	SST.11.H	200	Coarse khaki sand and rock
Gnathia cryptopais Barnard	SST.10.K	200	Coarse khaki sand and rock
Gnathia spongicola Barnard	SST.11.H	200	Coarse khaki sand and rock
Gnathia sp.	SST.10.J	—	—

	Cat. No.	Depth (M)	Substrate
Suborder ASELLOTA			
Family **Munnidae**			
Munna sp.	SST.21.X	120	Sand and rock
Family **Stenetriidae**			
Stenetrium crassimanus Barnard . .	SST.96.T	120	Rock and sand
Stenetrium dagama Barnard . . .	SST.91.X	200	Rock
	SST.92.C	200	Rock
	SST.11.K	200	Coarse khaki sand and rock
Stenetrium sp.	SST.8.B	200	Coarse khaki sand
	SST.37.N	80	Coarse sand and shell

SYSTEMATIC DISCUSSION

Suborder VALVIFERA

Family **Arcturidae**

Barnard (1920: 381) summarized the differences between four families of the Valvifera. The characters used by Barnard to redefine the family Pseudidotheidae Ohlin (1901) were partly based on his new genus *Holidotea*. With the present material, and especially the two species of the new genus *Austroarcturus*, as well as four species of *Microarcturus* available, a more critical examination of *Holidotea* shows that it is not a member of the Pseudidotheidae but is rather a member of the family Arcturidae. Reasons for the change follow the descriptions of the species of the new genus *Austroarcturus*.

Holidotea unicornis Barnard

Figs 2a–j

Holidotea unicornis Barnard, 1920: 382; 1940: 493. Nordenstam, 1933: 113. Nierstrasz, 1941: 262.

Remarks

It was thought useful to include figures of some of the appendages of this species not given in Barnard's description, as these are relevant to the discussion of the family position of the species.

Austroarcturus gen. nov.

Body dorso-ventrally flattened. Eyes dorsal. Lateral margins of head entire. Peraeonal segment I fused with head, yet distinguishable. Pleon consisting of two distinct segments plus pleo-telson. Penis single, apically bifid. Peraeopod I shorter than following peraeopods, strongly setose. Peraeopods II to IV sparsely setose, more slender than peraeopods V to VII. Exopod of male pleopod 1 modified; stylet present on endopod of male pleopod 2. Inner ramus of uropod minute.

Type species of the genus: *Austroarcturus foveolatus* sp. nov.

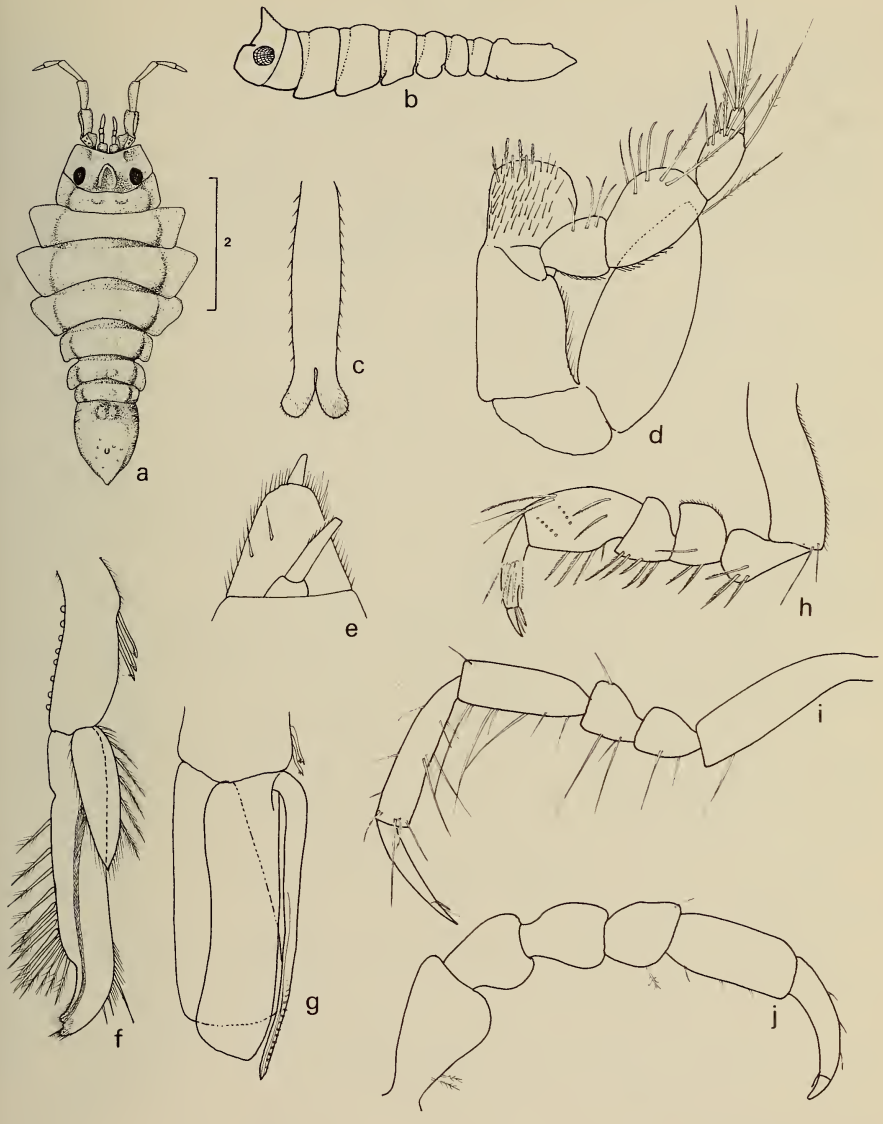

Fig. 2. *Holidotea unicornis* Barnard.

a. ♂, dorsal view; b. ♂, lateral view; c. penis; d. maxilliped; e. apex of uropod; f. pleopod 1 ♂; g. pleopod 2 ♂; h. peraeopod I; i. peraeopod III; j. peraeopod VI.

Austroarcturus foveolatus sp. nov.

Figs 3a–n

Description of ♀

Body dorso-ventrally flattened. Dorsal surface finely pitted. Peraeonal segment I fused with head yet distinguishable. Body widest at peraeonal segments II and III, segments IV to VII becoming gradually narrower. Pleon consisting of two free segments plus pleo-telson. Latter with distinct indentation proximo-laterally. Head bearing mid-dorsal sloping crest between eyes, continued on posterior portions of segments II to IV, strongest on segments II and IV.

Antennule about one-third length of antenna, peduncle 3-segmented, flagellum a single segment bearing several aesthetascs.

Antennal peduncle 5-segmented, 2nd segment triquetral, with prominent lateral flange; two proximal segments subequal; 4th and 5th segments slender. elongate; flagellum of two segments, tipped with strong spine.

Mandible bearing tridentate incisor process; lacinia mobilis tridentate with three penicils at its base, molar process large, bearing numerous short bristles.

1st maxilla biramous, outer ramus tipped with about 10 spines, inner ramus bearing three stout plumose setae.

2nd maxilla, outer ramus bilobed, outer lobe with three serrate spines, inner with two, inner ramus bearing six plumose setae and four simple setae.

Maxilliped with 5-segmented palp, endite distally slightly convex, bearing numerous bristles plus about seven fringed setae.

Peraeopod I shorter than rest, basal segment equal in length to merus, ischium, carpus, and half of propodus. Merus with broad dorsal flange; propodus broadly oval in shape; dactylus stout, somewhat hook-like; two distal segments bearing numerous fringed setae, those on propodus arranged in rows.

Peraeopods II to IV slender, with elongate propodi, carpi, and bases; dactyli slender, curved.

Peraeopods V to VII stout, shorter than earlier peraeopods except peraeopod I, propodus equal in length to carpus and merus together.

Uropods articulating with pleon at about midpoint of outer margin, basally rounded, distally lanceolate, bearing two rami, outer ramus tiny, inner ramus reduced to papilla bearing single serrate spine.

Description of ♂

Head and peraeon appendages as in female. Rounded crest on head and dorsal crests of peraeonal segments III and IV relatively stronger than in female. Penis elongate, single, distally bifid, rounded, bearing numerous fine bristles.

Pleopod 1, propodus shorter than rami, bearing row of short blunt spines on outer margin, four hooks on inner margin; outer ramus equal in length to

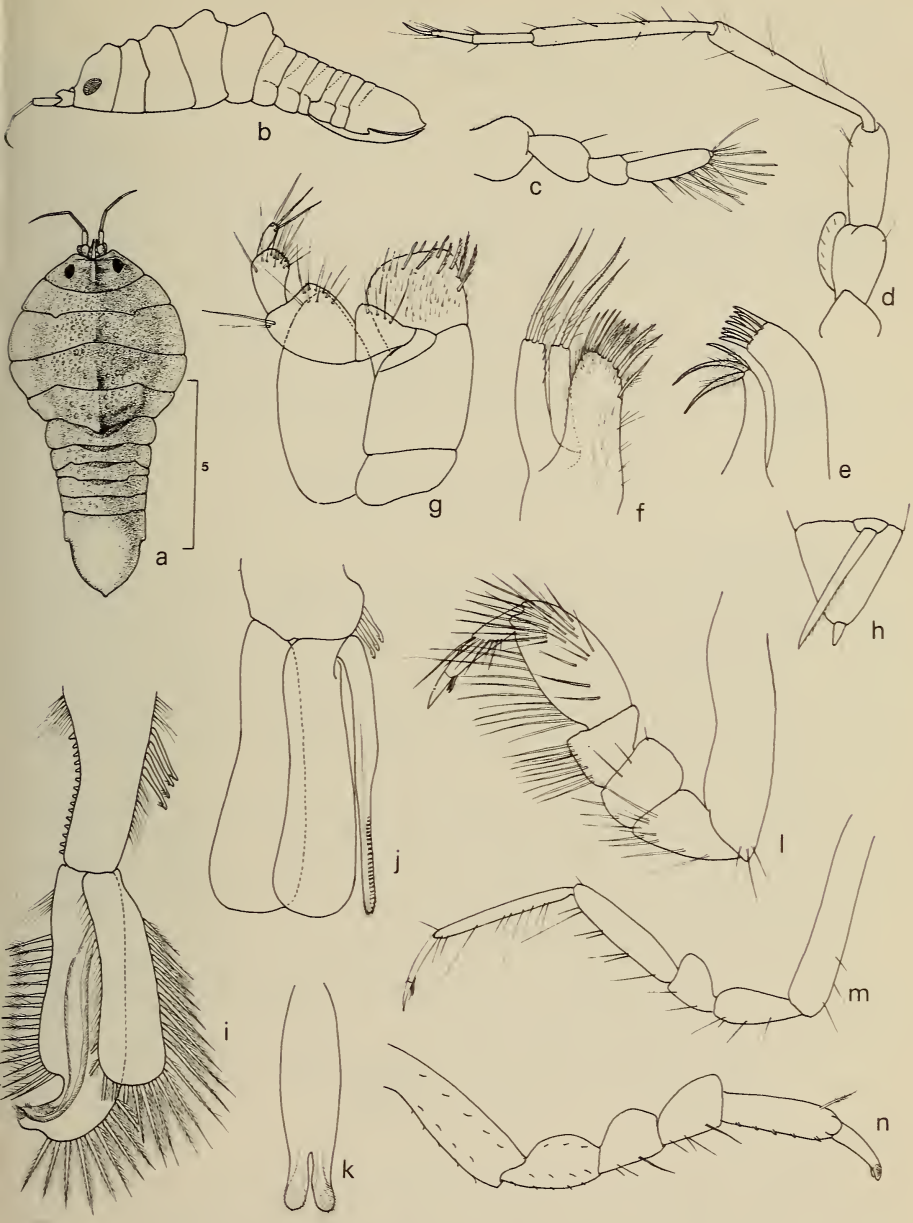

Fig. 3. *Austroarcturus foveolatus* sp. nov.

a. ♀, dorsal view; b. ♀, lateral view; c. antennule; d. antenna; e. 1st maxilla; f. 2nd maxilla; g. maxilliped; h. apex of uropod; i. pleopod 1 ♂; j. pleopod 2 ♂; k. penis; l. peraeopod I; m. peraeopod II; n. peraeopod VII.

propodus, fringed with plumose setae; inner ramus apically modified, curved towards median line, with convoluted tip.

Pleopod 2 bearing elongate stylet on base of inner ramus; stylet with several rows of fine bristles.

Material

			♀	♂
Holotype	SAM–A13540	SST.1.Y	9,0	—
Allotype	SAM–A13540	SST.11.J	—	7,0
Paratypes	SAM–A13541	SCD.272.C	7,4	4,5
			4,9	
		SCD.204.D	4,9	—
		SCD.217.R	3,2	

Single juvenile specimens from SCD.235.C, SCD.326.F, FAL.760.N.

Austroarcturus africanus sp. nov.

Figs 4a–k

Description of ♀

Body dorso-ventrally flattened, integument smooth. Peraeonal segment I fused with head yet distinguishable. Body widest at peraeonal segment II; peraeonal segment IV not as wide as III or V. Segments V and VI equal in width, segment VII shorter and narrower than preceding segments. Pleon consisting of two free segments plus pleo-telson. Latter with proximo-lateral lobes, strongly convex, distally bluntly rounded. Head evenly rounded, convex. No dorsal crests or ridges.

Antennule about one-quarter length of antenna, peduncle 3-segmented, flagellum of a single segment bearing several aesthetascs.

Antennal peduncle 5-segmented, segments 2 to 5 subequal in length, 2nd triquetral with prominent flattened lateral flange; flagellum of two segments.

Mouthparts as in *Austroarcturus foveolatus.*

Peraeopods II to IV more slender than peraeopods V to VII, with scattered setae and numerous fine setules on ventral surface. Peraeopods V to VII stout, also bearing numerous setae and setules.

Outer ramus of uropod tiny, with terminal fringed spine, inner ramus reduced to a papilla bearing a single fringed spine.

Description of ♂

Similar to female, but epimeres of peraeonal segments V and VI more rounded, and more obviously extending laterally beyond segment IV. Penis elongate, single, distally bifid for about one-third of length, lobes distally rounded, bearing setules.

Pleopod 1 propodus basally wider than distally, bearing about 18 short blunt spines on outer margin, four elongate hooks on inner. Outer ramus elongate-rectangular, fringed with plumose setae. Inner ramus distally modified,

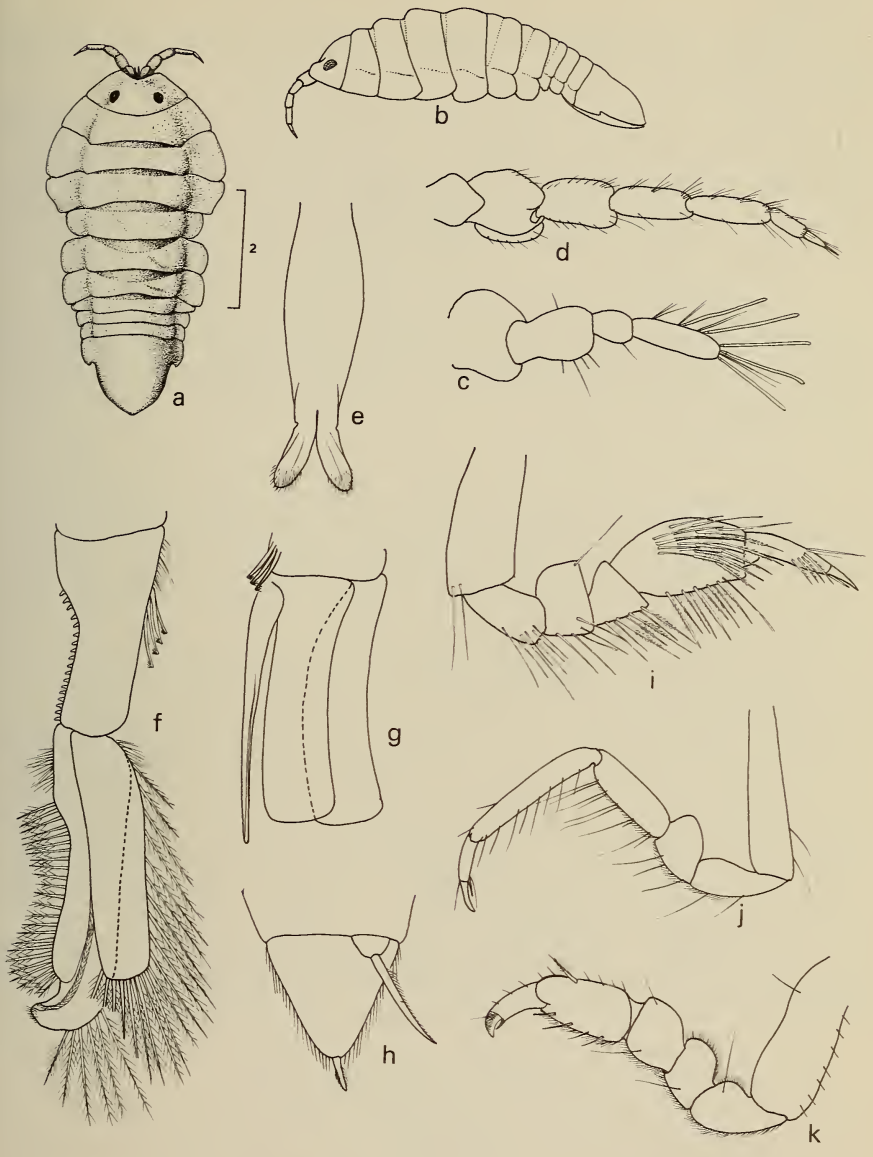

Fig. 4. *Austroarcturus africanus* sp. nov.

a. ♂, dorsal view; b. ♂, lateral view; c. antennule; d. antenna; e. penis; f. pleopod 1 ♂; g. pleopod 2 ♂; h. apex of uropod; i. peraeopod I; j. peraeopod II; k. peraeopod VII.

bearing row of about 25 stiff plumose setae on outer margin, distally curved and rounded.

Pleopod 2 bearing slender elongate stylet on base of inner ramus, extending slightly beyond tips of rami.

Material

			♀	♂
Holotype	SAM–A13542	FAL.442.E	—	5,4
Allotype	SAM–A13542	FAL.442.E	6,0 ovig.	—
Paratypes	SAM–A13543	FAL.428.P	7,0 ovig.	6,5
			5,9 ovig.	

Numerous males (3,9–6,2 mm) and females (4,9–7,0 mm) from the following stations: FAL.589.E., FAL.335.D., SST.102.M., SCD.337.P., SCD.339.P., SCD.243.N., SCD.293.W., SB.304.U., SB.187.J., SB.270.H., WCD.206.R., WCD.211.K.

Remarks

The present species is obviously closely related to the foregoing *Austroarcturus foveolatus*, but differs in several definite and constant features. In *A. foveolatus* peraeonal segments V to VII and the pleo-telson taper gently and evenly posteriorly; in *A. africanus* the epimeres of segments V and VI extend laterally well beyond those of segments IV and VII. The proximo-lateral lobes at the base of the pleo-telson are more strongly developed in *A. africanus*, and consequently the notch formed distally at the fusion to the pleo-telson is wider. The integument of this latter species is not so obviously granular and pitted as in *A. foveolatus*, and when seen in profile, *A. africanus* lacks the high median crest of *A. foveolatus*. In the appendages (excluding the mouthparts) there are subtle differences but the most striking are in the antennae. In *A. foveolatus* the 4th and 5th peduncle segments are very elongate and slender, each being equal in length to the three basal segments together. *A. africanus* does not have elongate segments in the antennal peduncle.

It is the author's opinion that *Holidotea* should be placed in the Arcturidae because the species is more or less intermediate between species of *Austroarcturus* and *Microarcturus* of that family. The reasons are as follows:

A similar differentiation of the peraeopods is apparent in species of the threegenera.

The mouthparts and uropodal rami are similar.

The outer ramus of pleopod 1 in the male, although showing slight differences, follows the same basic plan in all three genera.

The 2nd pleopods in the males are similar, as are the penes. From this list, the three genera would seem to be quite closely related.

Barnard (1920) separated the Pseudidotheidae from the Arcturidae (Astacillidae in his table) by the following features:

1. Body flattened in Pseudidotheidae, cylindrical in Arcturidae.
2. Peraeonal segment IV never elongate in Pseudidotheidae, often elongate in the Arcturidae.

3. Peraeopod I prehensile in the Pseudidotheidae, slender and setiferous in the Arcturidae.
4. Peraeopods II to IV stout (moderately) in Pseudidotheidae, slender and setiferous in the Arcturidae.

Comparison of species of the three genera make it obvious that these criteria can be given little strength in the separation of the two families.

Several members of the Arcturidae possess a body to some degree dorso-ventrally depressed, especially species of *Arcturella* and *Microarcturus*. This flattening is especially noticeable in the females.

Several species of the arcturids do not possess elongate 4th peraeonal segments, e.g. *Arcturella* and *Microarcturus*.

From the species here discussed, and from the figures supplied, it can be seen that the 1st peraeopods are very similar in structure, as are peraeopods II to IV, and V to VII. Ohlin (1901), in his description of the family Pseudidotheidae based on *Pseudidothea bonnieri*, notes that peraeopods II to VII are nearly the same in structure and size. His figure of *P. bonnieri* shows a very idoteid-like isopod, quite unlike *Holidotea unicornis*. It would seem that *Holidotea unicornis* is more closely related to species of the arcturids than to species of the Pseudidotheids. It is proposed that *Holidotea* thus be placed in the Arcturidae. The criteria used to separate species of the three genera, *Holidotea*, *Austroarcturus*, and *Microarcturus*, are summarized in Table 1.

Table 1

	Holidotea Barnard	*Austroarcturus* Kensley	*Microarcturus* Nordenstam
Lateral margins of head	Entire	Entire	Incised
Eyes	Dorsal	Dorsal	Dorso-lateral
Peraeonal segment I	Distinguishable, fused to head	Distinguishable, fused to head	Indistinct, completely fused to head
Pleon	No distinct segments anterior to pleo-telson	2 distinct segments anterior to pleo-telson	2–3 distinct segments anterior to pleo-telson
Inner ramus of pleopod 1 ♂	Less than half length of outer ramus, distally acute	More than half length of outer ramus, distally truncate-rounded	More than half length of outer ramus, distally truncate-rounded

Microarcturus similis (Barnard)

Figs 5a–b

Antarcturus similis Barnard, 1925: 395; 1940: 508.
Microarcturus similis: Nordenstam, 1933: 128.

Material

SST.106.A–C 1♂
SST.40.J 1♂
SST.46.C 1♀

Remarks

For comparison with the new species described below, a male and female of this species are figured in dorsal view.

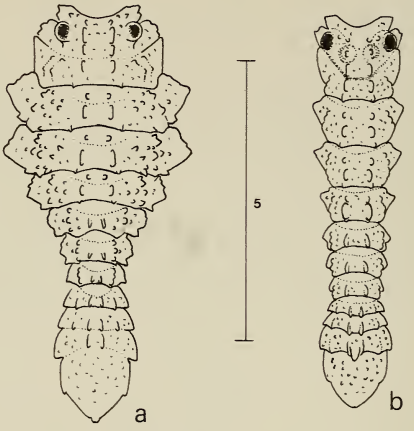

Fig. 5. *Microarcturus similis* (Barnard).
a. ♀, dorsal view; b. ♂, dorsal view.

Microarcturus laevis sp. nov.

Figs 6a–l

Description of ♀

Integument smooth. Body dorso-ventrally flattened, head and peraeonal segment I fused, but with lateral margins free. Body widest at peraeonal segments II and III; peraeonal segments V to VII and pleo-telson narrow, all of similar width. Pleon consisting of two free segments, with third segment indicated on pleo-telson. Head bearing two large dorso-lateral eyes separated by convex semicircular portion, antero-lateral corners slightly produced. Epistome produced into blunt tapering process, tip just visible in dorsal view. All epimeres distinct, those of peraeonal segments II and III evenly convex in dorsal view. Peraeonal segments all dorsally convex, segment III bearing two broadly convex submedian dorsal bulges. Rounded boss at base of pleo-telson.

Antennule slightly less than one-third length of antenna, consisting of 3-segmented peduncle and one flagellar segment. Basal segment broad, bearing fine setae, flagellum equal in length to distal two peduncle segments.

Antennal peduncle 4-segmented, 3rd segment longest, flagellum 2-segmented, tipped with single spine.

Mandible with strongly chitinised quadridentate incisor process, lacinia mobilis tridentate with three penicils at its base, large broad molar process covered with fine bristles.

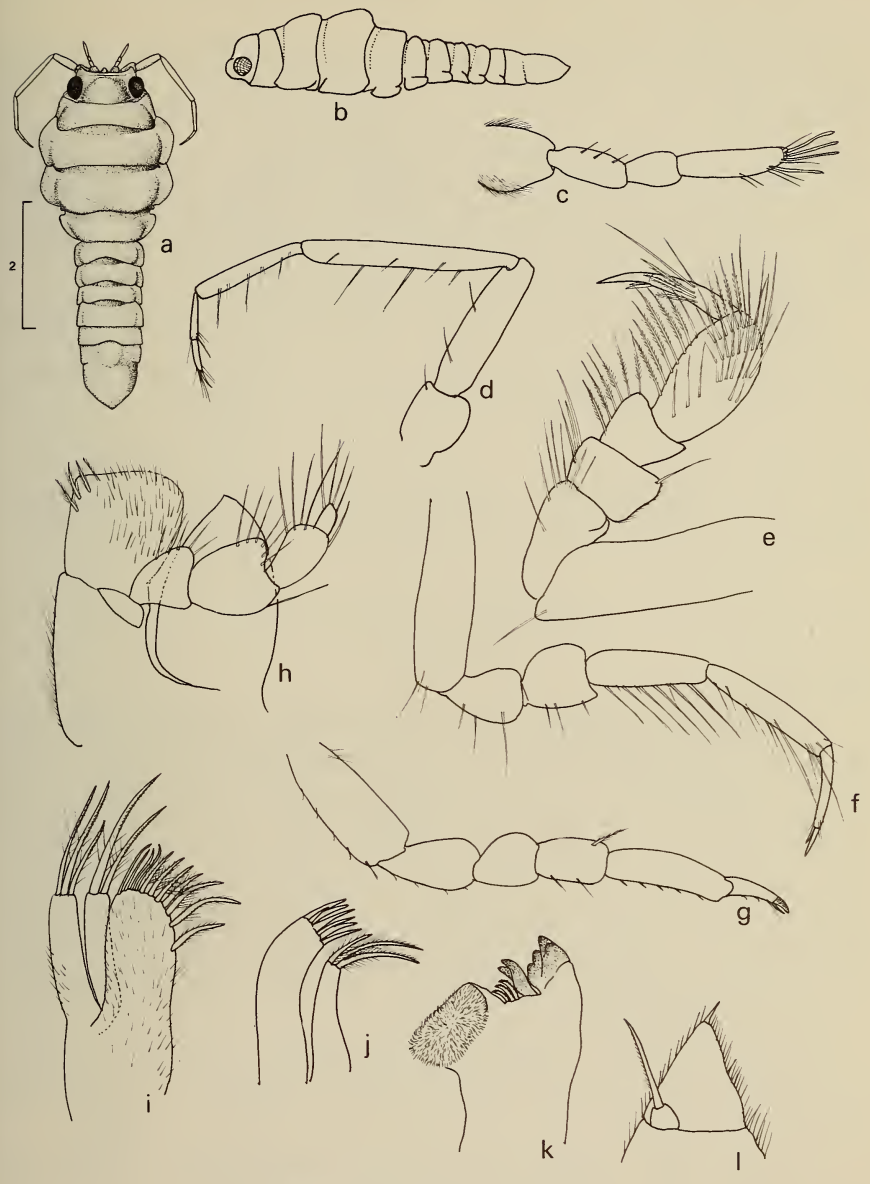

Fig. 6. *Microarcturus laevis* sp. nov.

a. ♀, dorsal view; b. ♀, lateral view; c. antennule; d. antenna; e. peraeopod I; f. peraeopod II; g. peraeopod VII; h. maxilliped; i. 2nd maxilla; j. 1st maxilla; k. mandible; l. apex of uropod.

Inner ramus of 1st maxilla bearing three long plumose setae, outer ramus tipped with about 10 spines.

Inner ramus of 2nd maxilla bearing seven plumose setae and four slender spines distally; inner lobe of outer ramus with two distal serrate spines, outer lobe with three.

Maxilliped palp 5-segmented, 3rd segment broadest; endite broad, bearing numerous simple setae plus several short fringed setae on inner distal angle.

Peraeopod I shorter than following peraeopods; basis equal in length to ischium, merus, and carpus together; propodus bearing three rows of setae on outer distal face; dactylus armed with serrate setae.

Peraeopods II to IV slender, dactyli, propodi, and carpi elongate, unguis of dactylus blunt, striated.

Uropods proximally evenly rounded; outer ramus minute, inner ramus tiny, reduced to papilla bearing a single serrate spine.

Material

Holotype	SAM–A12544	1 ovigerous ♀	6,4 mm	FAL.803.K
Paratype	SAM–A13545	1 ovigerous ♀	5,2 mm	FAL.423.D

Microarcturus ornatus sp. nov.

Figs 7a–o

Description of ♀

Body with large tubercles, widest at peraeonal segment III. Head with antero-lateral corners acute; broad transverse furrow separates rounded posterior ridge from rest of head. Eyes large, lateral. Peraeonal segment I with epimeres ventrally directed, tridentate. Epimeres of peraeonal segments II to IV expanded laterally. Peraeonal segments with two medio-lateral tubercles, largest on segments I to IV. Pleon consisting of one indistinct and two distinct segments plus pleo-telson. Latter terminally acute, with strong lateral teeth, and bearing scattered tubercles. Antennule reaching to midpoint of 2nd antennal peduncle segment. Peduncle 3-segmented, basal segment broadest, 3rd segment one-quarter length of flagellum.

Antennal peduncle 4-segmented, basal segment about half length of 2nd segment, with antero-lateral corner acute, 2nd segment with distal spine, 3rd and 4th segments slender, subequal in length, flagellum 2-segmented with slender terminal spine.

Mandible with tridentate incisor process; lacinia mobilis tridentate with three penicils at base, and broad setose molar process with four slender setae at its base.

1st maxilla with three setae on inner ramus, several spines on outer ramus.

2nd maxilla inner ramus bearing five simple spines and five stout setae, outer lobe of outer ramus bearing three elongate spines, inner lobe with two fringed setae.

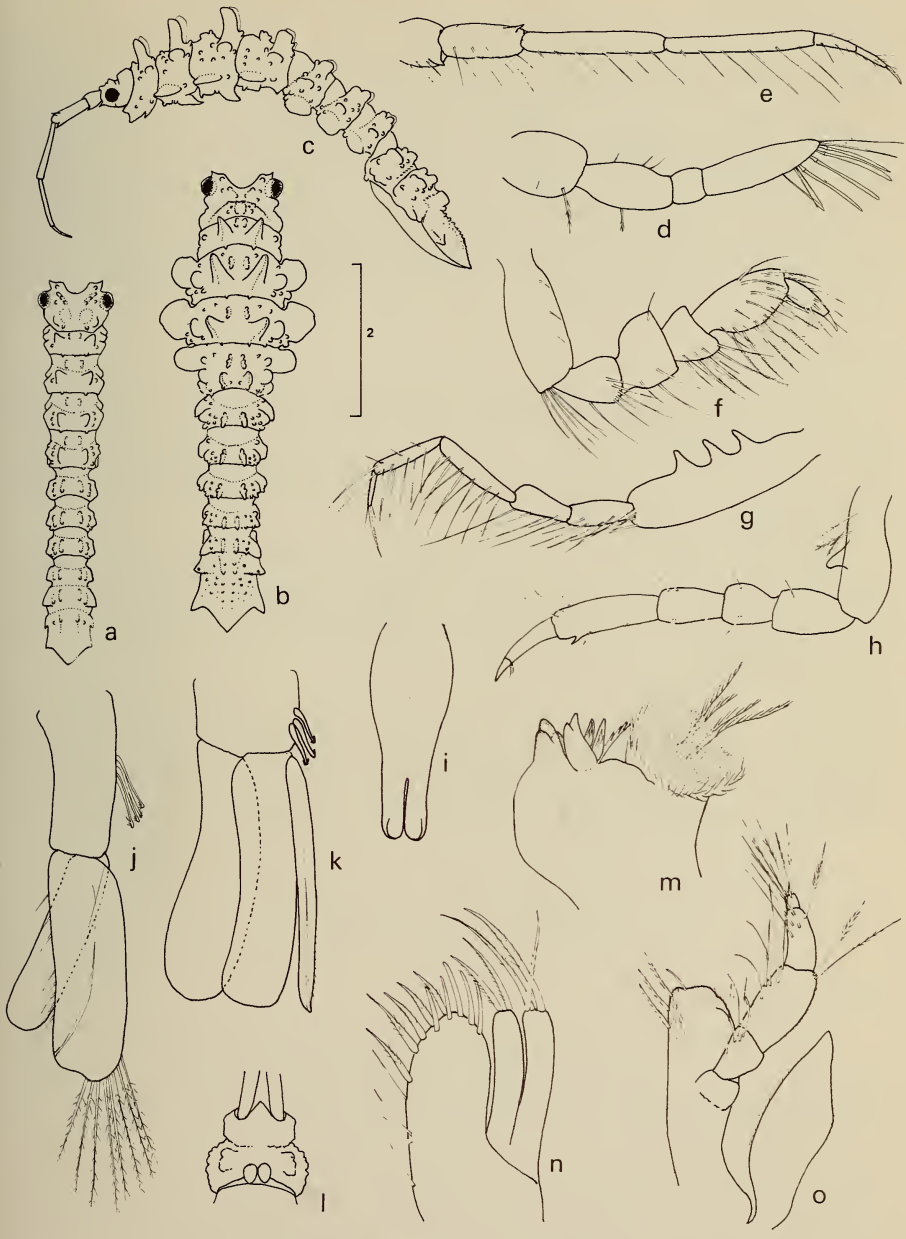

Fig. 7. *Microarcturus ornatus* sp. nov.

a. ♂, dorsal view; b. ♀, dorsal view; c. ♀, lateral view; d. antennule; e. antenna; f. peraeopod I ♀; g. peraeopod III ♀; h. peraeopod VII ♀; i. penis; j. pleopod 1 ♂; k. pleopod 2 ♂; l. peraeonal segment IV, ♂, ventral view; m. mandible; n. 2nd maxilla; o. maxilliped.

Maxilliped palp 5-segmented, endite relatively narrow, with three setae at inner distal angle.

Peraeopod I shorter than following peraeopods; propodus twice length of dactylus, basis equal in length to ischium and merus together.

Peraeopods II to IV increasing in length posteriorly, five distal segments relatively slender, bearing elongate setae; basis stout, bearing two strong spinose processes on dorsal margin in peraeopods II and III, three processes on peraeopod IV; terminal segment with strong serrate spine apically.

Peraeopods V to VII with all segments robust, propodus bearing small disto-ventral spine, basis with strong spinose process at about midpoint of outer face.

Description of ♂

Body elongate, parallel-sided, hardly depressed, bearing numerous tubercles. Peraeonal segments I to IV with more prominent submedian dorsal tubercles. Peraeonal segment IV bearing ventrally a triangular process between bases of peraeopods, plus two submedian oval flattened processes distally. Peraeopods II to IV lacking processes on bases.

Pleopod 1 with outer ramus broader and longer than inner, bearing oblique curved groove on anterior face, ending on a rounded distal prominence. Stylet on inner ramus of pleopod 2 sabre-like. Penis basally broad, distally bifid, rami not diverging.

Material

Holotype	SAM–A13546	SST.10.H	♀ ovig.	6,4 mm
Allotype	SAM–A13546	SST.10.H	♂	5,0 mm
Paratypes	SAM–A13547	SST.10.H	2 ♂♂	5,0 mm
				4,1 mm

Microarcturus quadriconus sp. nov.

Figs 8a–i

Description of ♀

Peraeon segments II and III broadest. Head and peraeonal segment I fused, with shallow furrow indicating line of fusion. Anterior margin of head concave, eyes dorso-lateral, two large submedian conical tubercles in line with eyes, each flanked by a tiny anterior and posterior tubercle. Submedian tubercles of peraeonal segment I tiny, two lateral rounded tubercles slightly larger. Peraeonal segments II to IV each with four large conical tubercles. Peraeonal segments V to VII each with two tubercles. Pleon having two segments anterior to pleotelson, latter with large rounded boss mid-dorsally at base. Pleo-telson pentagonal, distally acute. Antennular peduncle 4-segmented, basal segment equal in length to 2nd and 3rd segments together; flagellum 2-segmented.

Mouthparts typical of the genus.

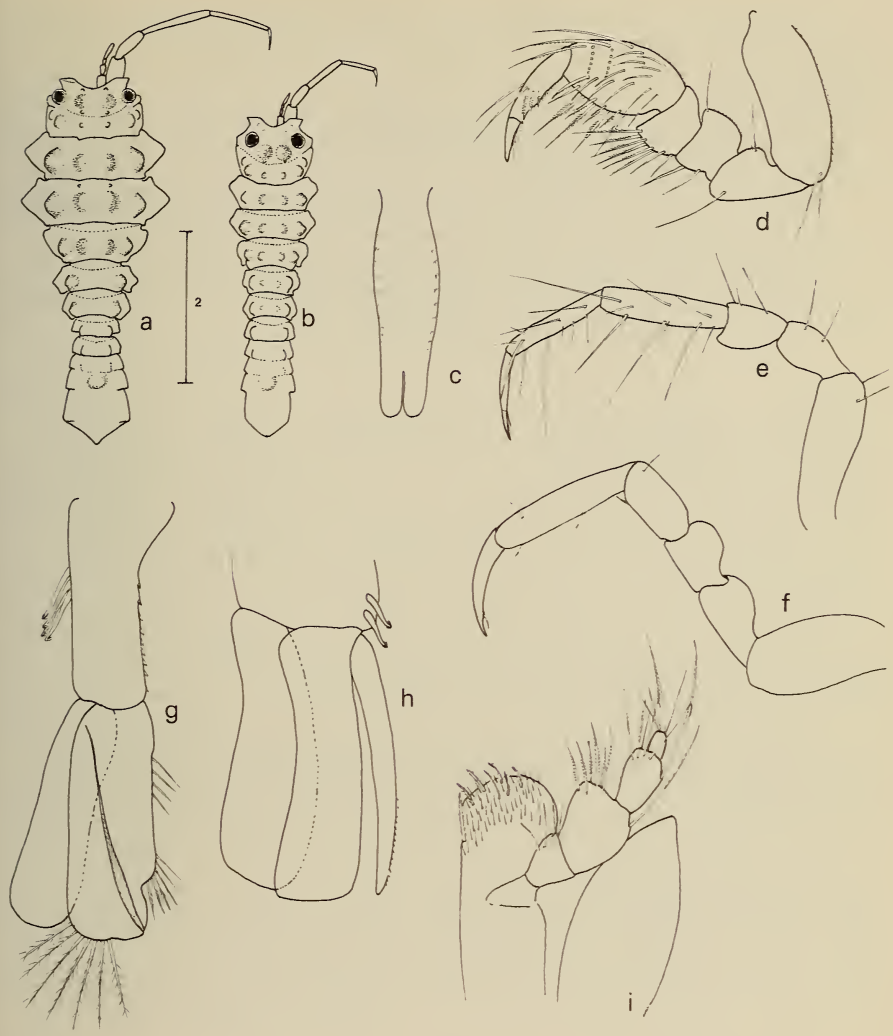

Fig. 8. *Microarcturus quadriconus* sp. nov.
a. ♀, dorsal view; b. ♂, dorsal view; c. penis; d. peraeopod I; e. peraeopod II; f. peraeopod VII; g. pleopod 1 ♂; h. pleopod 2 ♂; i. maxilliped.

Peraeopod I shorter than following peraeopods, three distal segments bearing numerous serrate spines.

Peraeopods II to IV more slender than following ones, bearing few scattered elongate setae.

Peraeopods V to VII somewhat shorter than preceding ones, distal segments stouter.

Uropod with outer ramus tiny, inner ramus reduced to papilla with single serrate spine.

Description of ♂

Body elongate, peraeonal segments II and III only slightly wider than rest of body. Sculpture as in female.

Pleopod 1 rami subequal in length, outer ramus with oblique groove running almost entire length, ending at slight bulge at outer distal angle.

Pleopod 2 inner ramus distally truncate, equal in length to stylet, latter sabre-shaped. Penis single, distally bifid, distal rounded lobes not diverging. Pleo-telson not as obviously pentagonal as in female.

Material

Holotype	SAM–A13548	SST.101.C–K	♀ ovig.	5,2 mm
Allotype	SAM–A13548		♂	4,0 mm
Paratypes	SAM–A13549		♀ ovig.	5,6 mm
				4,8 mm
		SCD.217.R	♀ ovig.	4,9 mm

Remarks

The genus *Microarcturus* was defined by Nordenstam (1933: 128). The following characters which set it apart from species of *Arcturus*, are present in the foregoing three species, as well as in *M. similis*:

Lateral margins of head incised; eyes dorso-lateral; peraeonal segment I fused with head, often indistinct; pleon possessing two free segments plus one indicated on the pleo-telson; antennae shorter than body; antennal flagellum 2-segmented (2–4-segmented); pleo-telson never longer than last four peraeonal segments together.

M. ornatus resembles *M. rugosus* Nordenstam in the spination of the peraeopods II to IV, but lacks the numerous elongate acute tubercles and spinose epimeres of the Antarctic species. Apart from this similarity, the three species described here are rather distinctive, and most closely resemble *M. similis*. Table 2 summarizes the main differences between the four species.

Table 2

	M. similis	*M. ornatus*	*M. quadriconus*	*M. laevis*
Epimeres of peraeonal segments II & III ♀	Angular	Rounded	Angular	Rounded
Dorsal integument	Granular-tuberculate	Granular-tuberculate	Non-granular tuberculate	Smooth
Bases of peraeopods II to IV ♀	Non-spinose	Spinose	Non-spinose	Non-spinose
Pleo-telson	Rounded boss at base present or absent	No rounded boss at base	Rounded boss at base	Rounded boss present at base

Genus *Arcturina* Koehler, 1911

Barnard (1957) mentions the error in Koehler's description of the male of *Arcturina rhomboidalis*, where the figured second pleopod is labelled and referred to as the first pleopod. Barnard's material of *A. hexagonalis* consisted of a female and an immature male. Many males are now available, thus pleopod 2 of mature males can be recorded. *Arcturina rhomboidalis* and the three species included here are compared in table 3.

Arcturina hexagonalis Barnard

Figs 9a–k

Arcturina hexagonalis Barnard, 1925: 400; 1957: 6.

Description of ♂

Body slender, geniculate. Peraeonal segment I fused with head but distinguishable. Peraeonal segments I to III subequal in length, IVth segment subcylindrical, bearing two submedian somewhat indistinct bands of pile-like short hairs. Peraeonal segment V slightly longer than following segments. Pleon consisting of three fused segments plus pleo-telson. Fused segments subequal, short, each bearing two dorsal clumps of fine hairs. Antennae, antennules, and mouthparts as in female.

Peraeopod I within lateral wall of buccal cavity. Peraeopods II to IV directed anteriorly; peraeopods V to VII stout, considerably longer than anterior peraeopods.

Penial rami fused for half of length, tips hardly expanded.

Exopod of pleopod 1 with indentation on outer margin, bearing numerous fine simple setae plus three stout plumose setae. Exopod slightly longer than endopod.

Pleopod 2 bearing slender stylet on inner margin of endopod; apex of stylet with one short and two elongate spines extending well beyond endopod apex.

Previous records

Off Cape St Blaize, 75 metres.

Material

45 ♂♂, 33 ♀♀, False Bay.

Arcturina triangularis Barnard

Figs 10a–h

Arcturina triangularis Barnard, 1957: 4, fig. 3.

Description of ♂

Body slender, peraeonal segment I distinguishable, fused with head. Ventro-lateral margin of head slightly scalloped. Peraeonal segment IV equal in

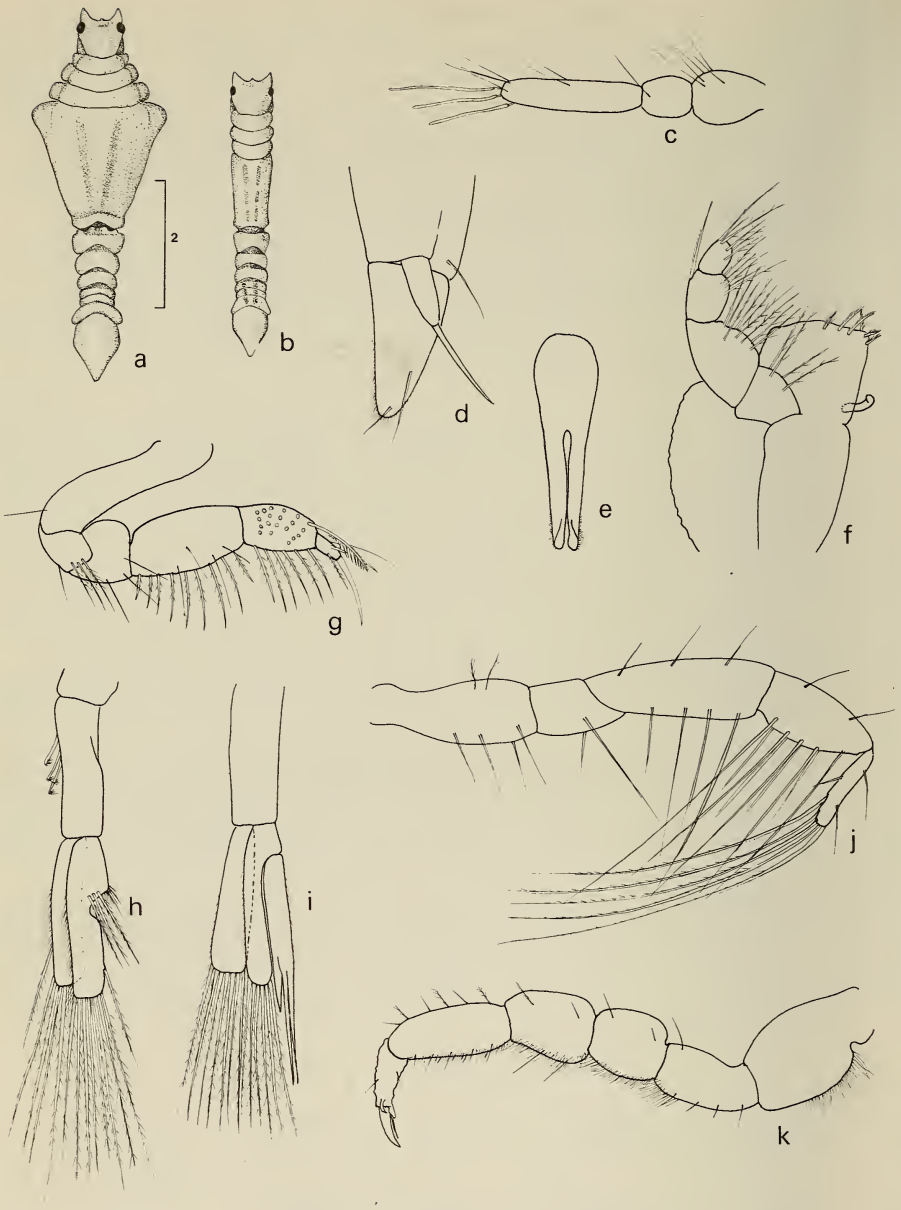

Fig. 9. *Arcturina hexagonalis* Barnard.

a. ♀, dorsal view; b. ♂, dorsal view; c. antennule; d. apex of uropod; e. penis; f. maxilla; g. peraeopod I; h. pleopod 1 ♂; i. pleopod 2 ♂; j. peraeopod III; k. peraeopod VI.

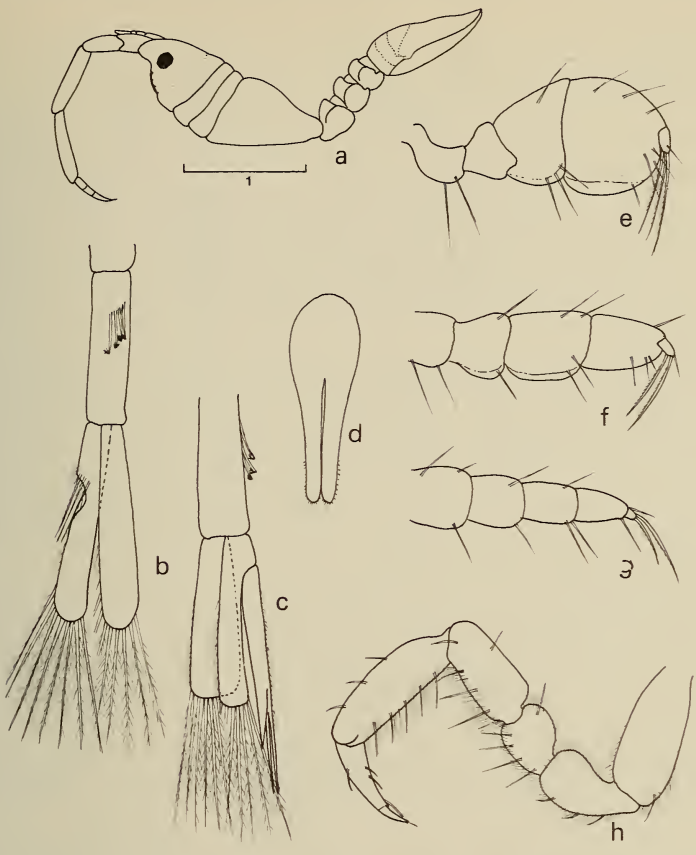

Fig. 10. *Arcturina triangularis* Barnard.
a. lateral view; b. pleopod 1 ♂; c. pleopod 2 ♂; d. penis; e. peraeopod II ♂; f. peraeopod III ♂; g. peraeopod IV ♂; h. peraeopod VI ♂.

length to head plus anterior three peraeonal segments. Ventral margin of peraeonal segment IV very slightly convex. Head and anterior four peraeonal segments bearing two submedian dorsal ridges which diverge posteriorly. Submedian ridges again visible on peraeonal segments VI and VII and on anterior portion of pleon. Peraeonal segments V to VII having strong lateral ridge. Mouthparts as in female. Peraeopod I hidden by lateral border of buccal cavity. Peraeopod II with reduced dactylus; propodus and carpus inflated and broad. Peraeopods III and IV more slender. Peraeopods V to VII stout, heavily setose. Pleopod 1 with exopod having indentation at proximal third, with three stout plumose setae, and numerous fine hairs. Pleopod 2 endopod bearing slender stylet on inner margin; stylet apically bearing one short and two long slender spines.

Previous records

Mossel Bay, Cape, 9 metres.

Material

8 ♂♂, 11 ♀♀. SST.61.U.

Arcturina scutula sp. nov.

Figs 11a–i, 12a–n

Description of ♀

Head and anterior four peraeonal segments together forming a lozenge-shaped structure. Head with well-developed antero-lateral lobes. Peraeonal segment I fused with head yet distinguishable. Two submedian dorsal ridges extend from anterior margin of head to posterior margin of peraeonal segment IV. Peraeonal segments V to VII bearing strong lateral ridges, Vth segment slightly larger than following segments. Pleon consisting of three indistinct segments fused to pentagonal pleo-telson.

Antennule 4-segmented, basal segment broad, 2nd and 3rd segments together equal in length to flagellum; latter bearing single terminal aesthetasc.

Antenna having 5-segmented peduncle and 3-segmented flagellum; first three peduncle segments together equal in length to 4th segment, latter equal to 5th.

Mandible consisting of tridentate strongly chitinised incisor process, smaller tridentate lacinia mobilis and two penicils at its base, and molar process bearing many close-set short bristles.

1st maxilla biramous, outer ramus tipped with about seven or eight simple spines, inner ramus bearing three terminal plumose setae.

2nd maxilla biramous, inner ramus tipped with six simple spines, outer ramus bilobed, each lobe bearing two elongate plumose setae.

Maxilliped with single coupling hook on inner margin of endite, few scattered fringed setae near upper margin; palp 5-segmented, 3rd segment longest, broadly oval, terminal segment about one-third length of penultimate segment.

Peraeopod I within lateral border of buccal cavity, propodus bearing numerous elongate serrate spines; dactylus bearing two setae and single strong curved spine.

Peraeopods II and III subequal in length, dactylus reduced, bearing three serrate spines, propodus broad.

Peraeopod IV slightly shorter than III, dactylus reduced, bearing two serrate spines, propodus more elongate than in previous peraeopods.

Peraeopods II to IV with well-developed oostegites, that of the IVth largest.

Peraeopods V to VII becoming successively slightly smaller.

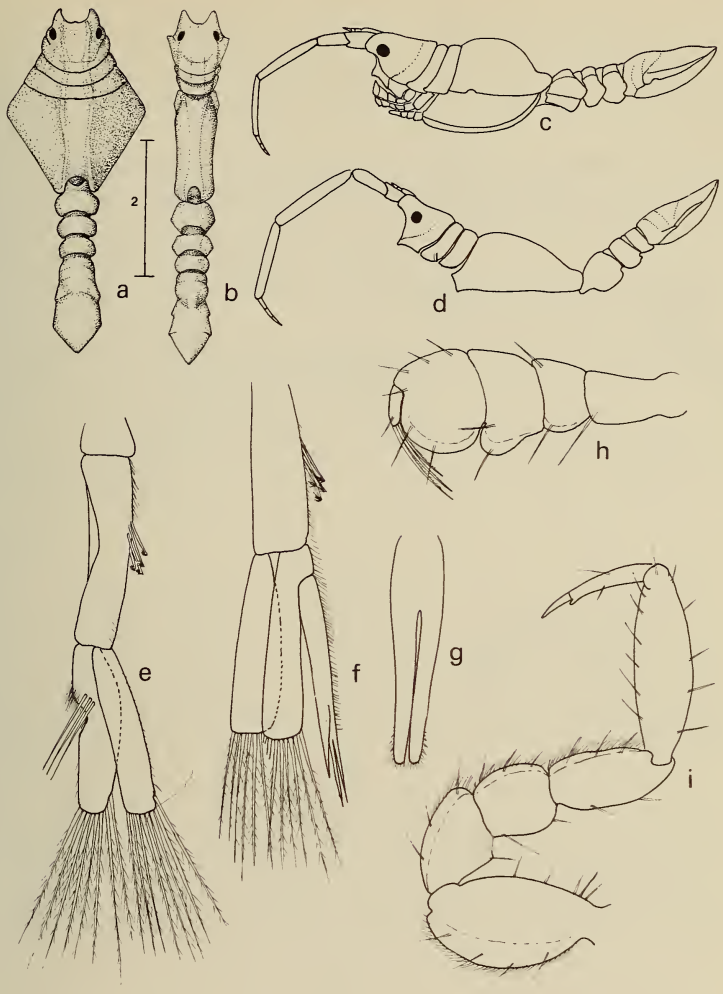

Fig. 11. *Arcturina scutula* sp. nov.
a. ♀, dorsal view; b. ♂, dorsal view; c. ♀, lateral view; d. ♂, lateral view; e. pleopod 1 ♂; f. pleopod 2 ♂; g. penis; h. peraeopod II ♂; i. peraeopod VI.

Uropods anteriorly rounded, distally tapering, bearing strong longitudinal carina near median margin, outer ramus small, inner ramus about half length and one-quarter breadth of outer, tipped with single simple seta.

Description of ♂

Body slender. Head and anterior three peraeonal segments together somewhat shorter than peraeonal segment IV. Head plus anterior four peraeonal segments longer than peraeonal segments V to VII plus pleo-telson. Head with

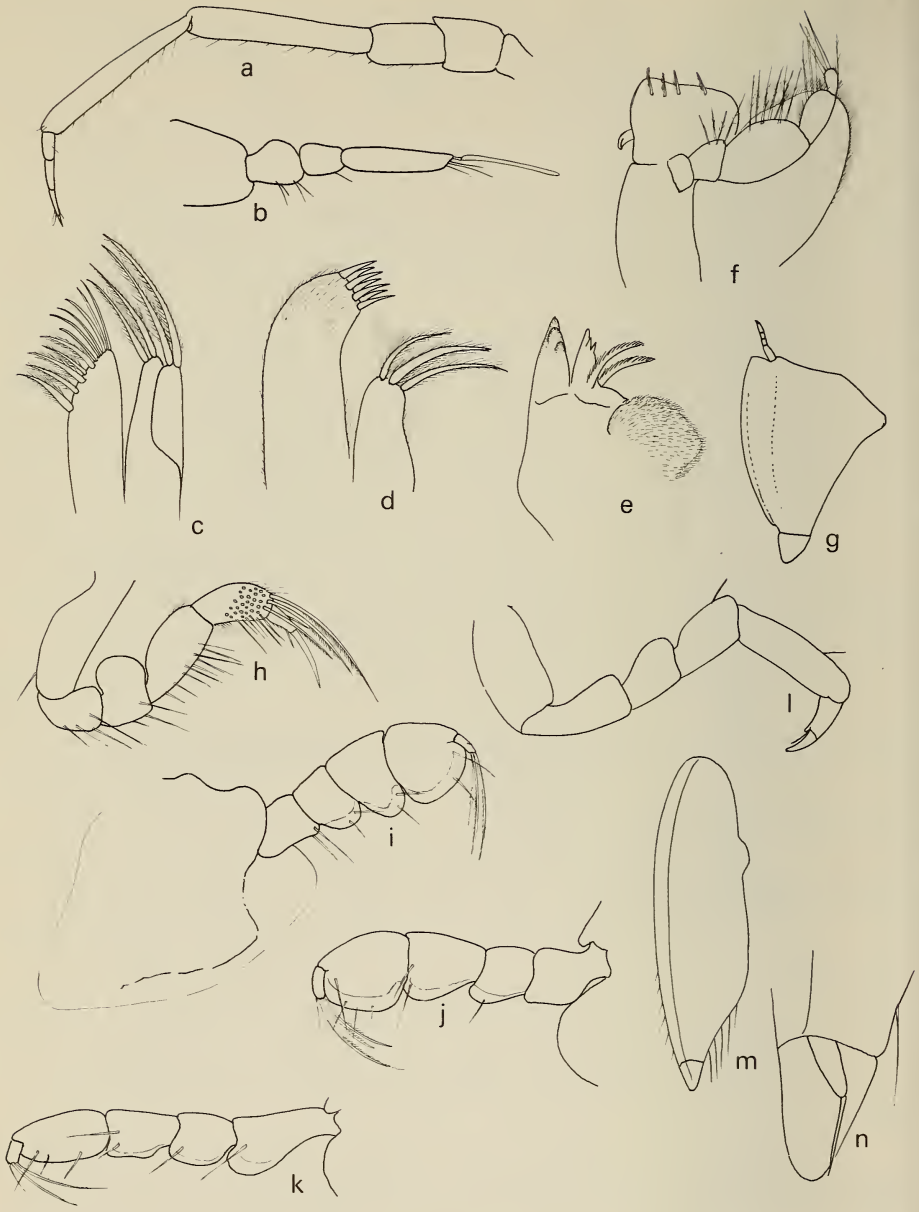

Fig. 12. *Arcturina scutula* sp. nov.

a. antenna; b. antennule; c. 2nd maxilla; d. 1st maxilla; e. mandible; f. maxilliped; g. oostegite of peraeonal segment IV; h. peraeopod I ♀; i. peraeopod II ♀; j. peraeopod III ♀; k. peraeopod IV ♀; l. peraeopod V ♀; m. uropod; n. apex of uropod.

well-developed antero-lateral lobes. Peraeonal segment I forming acute lateral projection at level of eyes. Two indistinct submedian ridges on Ist to IIIrd peraeonal segments. Peraeonal segment IV with two strong submedian ridges dorsally, slightly arched in lateral view, bearing an antero-ventral rectangular projection.

Antennae, antennules, mouthparts, and anterior four pairs of peraeopods similar to female. Peraeopods V to VII decreasing slightly in size posteriorly, basis with membranous ventral flange; propodus about equal in length to carpus plus merus; all segments bearing simple setae.

Penis consisting of two slender elongate rami fused basally for about one-quarter of their length.

Pleopod 1 endopod elongate, apically truncate, exopod with indentation on outer margin flanked by three stout setae.

Pleopod 2 endopod bearing slender stylet on inner margin; stylet distally consisting of one short and two elongate and more slender spines, reaching beyond apex of endopod.

Material

Holotype	SAM–A13537	False Bay	♂	4,5 mm
Allotype	SAM–A13537	False Bay	♀	3,5 mm
Paratypes	SAM–A13538	False Bay	4 ♂♂	4,3–5,1 mm
Paratypes	SAM–A13539	False Bay	3 ♀♀	3,5–3,8 mm

Numerous males and females from False Bay; also 4 ♂♂, 5 ♀♀, Algoa Bay.

Remarks

Three species of *Arcturina* have been described, viz. *A. rhomboidalis* Koehler, from Morocco and Mauritania, *A. hexagonalis* Barnard from Cape St Blaize, and *A. triangularis* Barnard, from Mossel Bay. Table 3 summarizes the differences between these three species and the new species *A. scutula.*

Table 3

♂	*A. rhomboidalis*	*A. hexagonalis*	*A. triangularis*	*A. scutula*
Dorsal ridges	More or less parallel extending on to anterior segments and head	Only on peraeonal segment IV	More or less parallel extending on to head and anterior segments	More or less parallel extending on to head and anterior segments
Peraeonal segment IV	Dorsally straight in lateral view	Dorsally straight in lateral view	Slightly arched dorsally in lateral view	Slightly arched dorsally in lateral view
	No antero-ventral projection	No antero-ventral projection	No antero-ventral projection	Truncate antero-ventral projection
	Greatest height $\frac{1}{4}$ length	Greatest height $\frac{1}{3}$ length	Greatest height $\frac{2}{3}$ length	Greatest height $\frac{1}{2}$ length
Total length	6–7 mm	Average for 10 specimens: 4,0 mm	Average for 3 specimens: 3,7 mm	Average for 10 specimens: 3,7 mm

Table 3 (*continued*)

♀	*A. rhomboidalis*	*A. hexagonalis*	*A. triangularis*	*A. scutula*
Total length	4 mm	Average for 10 specimens: 5,5 mm	Average for 7 specimens: 3,6 mm	Average for 10 specimens: 3,7 mm
Dorsal ridges	Separate, parallel, extending on to head	Anteriorly divergent absent from head and anterior 3 segments	Extending on to head converging on 3rd and anterior of 4th segment	Separate, more or less parallel, extending on to head
Peraeonal segment IV	Dorsally slightly curved; lozenge-shaped (with anterior 3 segments in dorsal view)	Straight in lateral view; widest anteriorly, anterior segments rounded	Smoothly curved in lateral view; lozenge-shaped, margins of anterior segments not as rounded as in *hexagonalis*	Strongly convex in lateral view; lozenge-shaped, margins of anterior segments not rounded
Antennule	2nd & 3rd segments serrate	No serrate segments	No serrate segments	No serrate segments
Uropods	Non-carinate	Non-carinate	Carinate	Strongly carinate

Neastacilla tranquilla sp. nov.

Figs 13a–d

Description of ♀

Head with ventral margins somewhat expanded; antero-dorsal corner also expanded anterior to dorso-lateral eye; two low rounded submedian dorsal bulges present. Peraeonal segment I fused with head, line of fusion marked by a narrow groove, and with lateral suture visible between head and Ist segment. Peraeonal segments I to III subequal, IVth segment about 3½ times length of three anterior segments together, tapering posteriorly in dorsal view. Peraeonal segment V slightly longer than following segments, segments V to VII each with three small lateral tubercles. Pleon consisting of three fused segments plus pleotelson, latter tapering to acute tip, sides slightly concave. Antennular flagellum of a single segment, equal in length to two distal peduncular segments together.

Antennal peduncle 5-segmented, 4th segment longest; flagellum 3-segmented, bearing about eight ventral spines. Three pairs of oostegites present.

Material

Holotype	SAM–A13615	SST.11.F.	♀ ovig.	6,3 mm
Paratype	SAM–A13616	SST.11.F.	♀ ovig.	6,3 mm

Remarks

Nordenstam (1933) defined the genus *Neastacilla* and mentioned some of the differences from *Astacilla*. The present material agrees with *Neastacilla* in

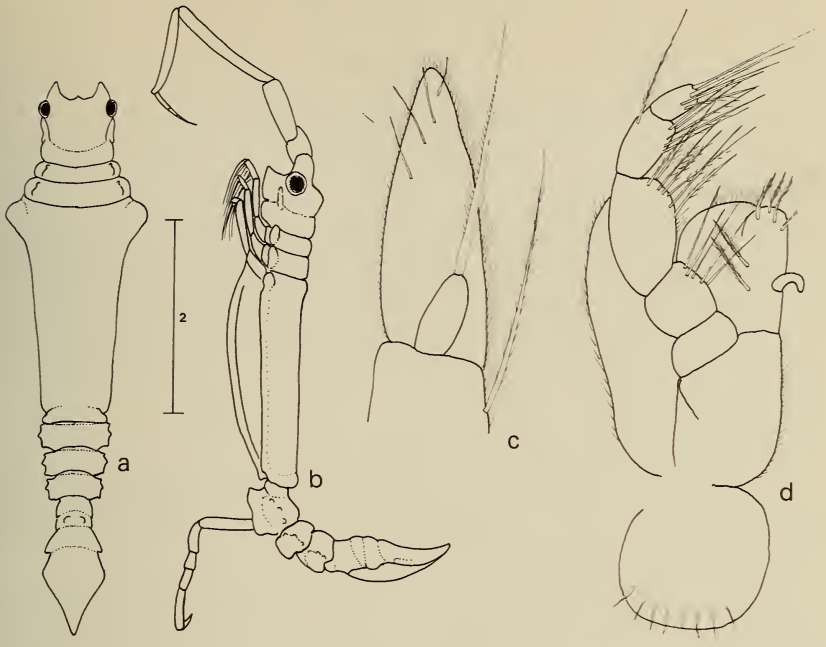

Fig. 13. *Neastacilla tranquilla* sp. nov.

a. ♀, dorsal view; b. ♀, lateral view; c. apex of uropod; d. maxilliped.

having peraeonal segment I fused with the head (the fusion marked by a shallow groove), the pleon consisting of three fused segments plus pleo-telson, and the inner ramus of the uropod bearing a long apical seta. The material does, however, show characteristics of species of *Astacilla*. These include the presence of a short lateral suture between the head and peraeonal segment I, and the lateral portions of the head and peraeonal segment I somewhat expanded. Peraeopod I however, does possess an unexpanded unguis on the dactylus. It would seem that Nordenstam's remark (1933: 119) concerning the superfluity of *Neastacilla* in view of species intermediate between *Astacilla* and *Neastacilla* may well be accurate.

N. tranquilla differs from the often recorded *N. bacillus* in several features, especially in the shape of the eyes, in being a relatively less slender species, and in possessing a 'shoulder' on the antero-lateral corners of peraeonal segment IV These shoulders are lacking in *N. bacillus*.

N. mediterranea, the other species recorded from South Africa, has a granulate integument and a spinose head, while *N. tranquilla* is quite smooth and non-spinose.

Suborder ANTHURIDEA

Family **Anthuridae**

Leptanthura agulhasensis sp. nov.

Figs 14a–k, 15a–d

Description of ♀

Head about half length of peraeonal segment I. Peraeonal segments I to VI subequal, segment VII two-thirds length of VIth. Pleonal segments free and distinct, pleon longer than peraeonal segment VII. Dorso-lateral keels only obvious on anterior peraeonal segments when seen in lateral view. Eyes absent.

Antennular peduncle 3-segmented, distal segment bearing several setae; flagellum very short, 4(5)-segmented.

Antennal peduncle 5-segmented, flagellum 4-segmented.

Mouthparts modified for piercing and sucking.

Mandible typical of the genus, elongate-acute; palp 3-segmented, broad middle segment three times length of basal segment, terminal segment short and narrow, bearing two terminal serrate spines.

Maxilla slender, elongate, distally serrate on inner margin, bearing three barbs on outer membranous margin.

Maxilliped elongate, basal segment at least four times longer than broad; followed by two (?three) distal segments bearing setae.

Peraeopod I with palm of propodus straight, with no thumb at base, with a row of seven short stout fringed setae flanked by simple elongate setae; carpus triangular, with three distal fringed setae, 2nd and 3rd segments subequal in length, 2nd segment wider.

Peraeopods II and III similar to I but becoming progressively more elongate.

Peraeopods IV to VII with dactyli slightly shorter than propodi, bearing 10–12 short setae on ventral margin; ventral margin of propodus with three spines; carpus triangular, small, underriding propodus, with two spines.

Exopod of pleopod 1 broadly oval, endopod half width of exopod, both rami fringed with elongate plumose setae.

Uropod exopod lanceolate, shorter than basis; latter with strong dorsal ridge, triangular in cross-section; endopod tapering to narrowly rounded apex extending beyond telsonic apex.

Telson with proximal two-thirds parallel-sided, distal third tapering to acute apex bearing a few fine setae. Single statocyst pore opening dorsally near base. Four pairs of oostegites present.

Description of ♂

Peraeopod I differs from female in having numerous setae on the palm, and in lacking a row of short fringed setae. Propodus with short blunt proximal projection.

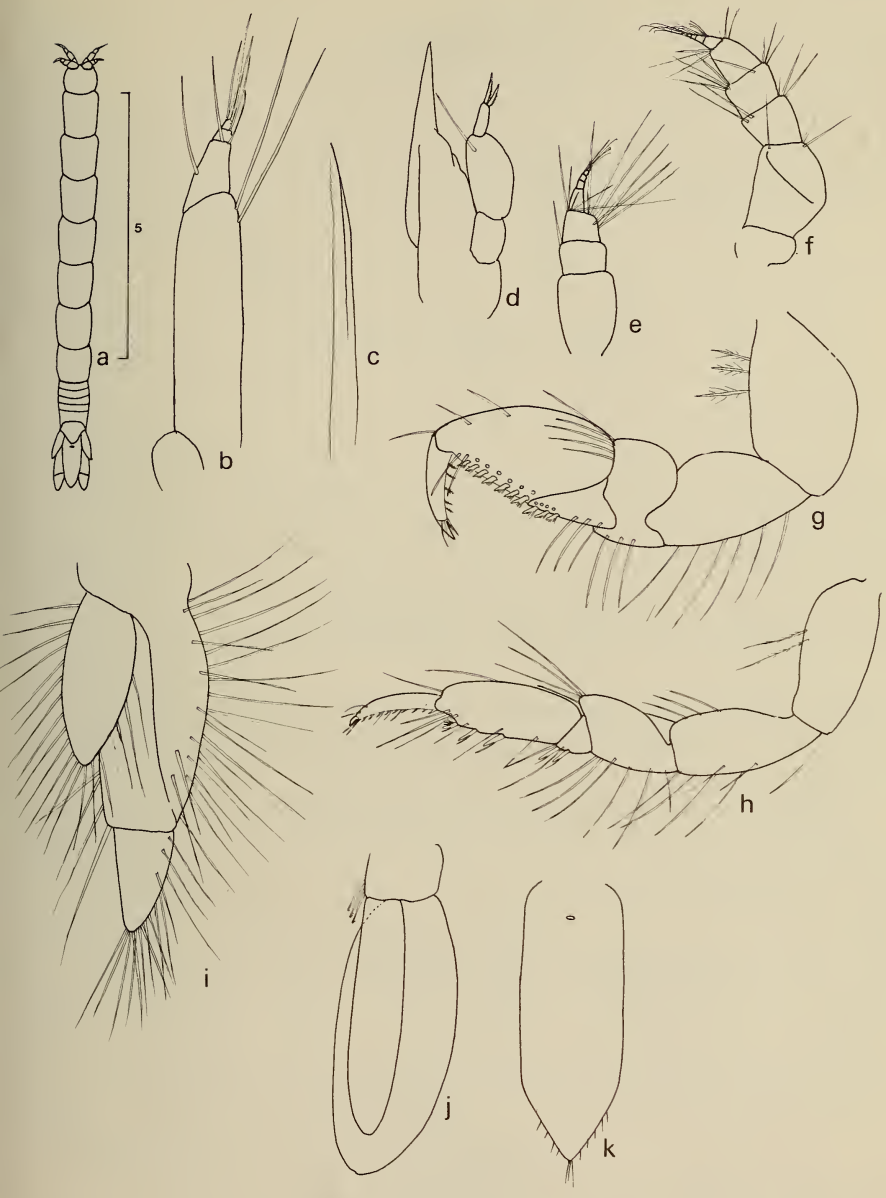

Fig. 14. *Leptanthura agulhasensis* sp. nov. ♀.

a. ♀, dorsal view; b. maxilliped; c. maxilla; d. mandible; e. antennule; f. antenna; g. peraeopod I; h. peraeopod VII; i. uropod; j. pleopod 1; k. telson.

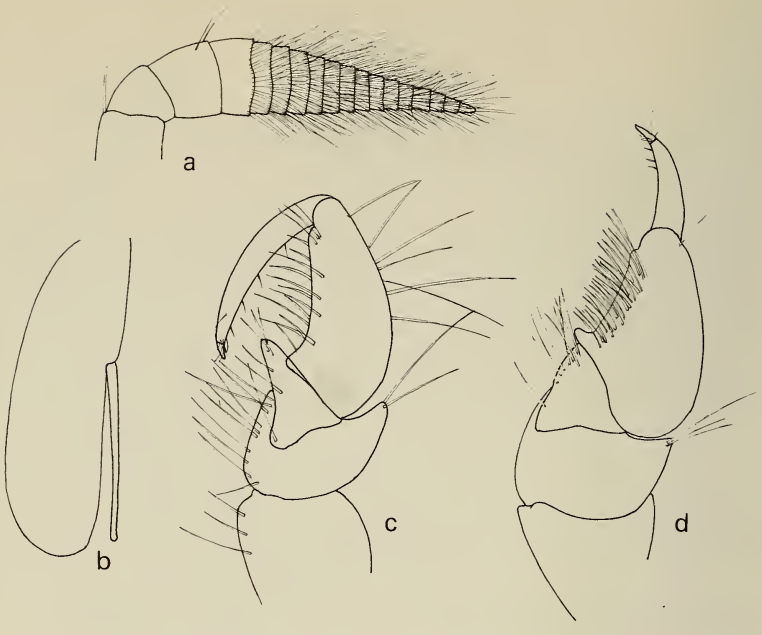

Fig. 15. *Leptanthura agulhasensis* sp. nov. ♂.
a. antenna; b. pleopod 2; c. peraeopod II; d. peraeopod I.

Peraeopod II more slender than peraeopod I, palm of propodus concave; blunt proximal projection of propodus outflanked by more elongate projection of carpus.

Antenna with brush-like flagellum of about 12 segments.

Pleopod 2 endopod with stylus not quite reaching apex of rami, apically rounded.

Material

Holotype	SAM–A13550	FAL.673.J–L	♂	9,0 mm
Allotype	SAM–A13551	SST.27.S	♀	8,0 mm
Paratypes	SAM–A13617	FAL.673.J–L	♂♂	9,1 mm
				9,0 mm
Paratypes	SAM–A13618	SCD.343.Q	♀♀	7,9 mm
				6,5 mm
		SCD.204.B	♀	6,8 mm
		WCD.77.G	♀	7,9 mm
		SST.31.U	♀	8,0 mm

Remarks

The present species would seem to be most closely related to *L. tenuis* (Sars) recorded from the North Atlantic. The two species agree in the structure of the

antennae, antennules, mouthparts, telson, and pleopods. In the structure of the peraeopods, however, the two species do differ. The palm of peraeopod I (as figured by Sars 1897, pl. 20; and Schultz 1969, fig. 129) of *L. tenuis* is concave, with a marked thumb, whereas the present species has a straight palm and no thumb. Peraeopods IV to VII differ in spination and setation. The uropods are also different. The present species has a marked dorsal ridge on the basis which is triangular in cross-section. This feature is not present in *L. tenuis*. The uropod exopod of the latter species is broader and proportionally longer than in *L. agulhasensis*.

Leptanthura urospinosa sp. nov.

Figs 16a–k

Description of ♀

Head about half length of peraeonal segment I. Peraeonal segments I to VI subequal in length. Peraeonal segment VII two-thirds length of VIth. Pleon equal in length to peraeonal segment VII. Pleonal segments free and distinct, 5th segment longer than preceding segments, 6th semicircular. Eyes absent.

Antennular peduncle 3-segmented, distal segment bearing several setae, flagellum 6-segmented.

Antennal peduncle 5-segmented, second segment longest, flagellum 3-segmented. Mouthparts modified for piercing and sucking.

Mandibular palp 3-segmented, median segment about twice longer than broad, distal segment bearing two serrate spines.

Maxilla slender, inner margin serrate, outer membranous margin bearing three separate barbs.

Maxilliped slender, elongate, basal segment extended distally on inner margin followed by two setae-bearing segments.

Peraeopod I with palm of propodus straight, bearing six stout serrate setae plus several simple setae; carpus triangular, bearing three stout sensory setae.

Peraeopod VII with propodus carrying four sensory setae on ventral margin; carpus underriding propodus, triangular, carrying two sensory setae; unguis of dactylus very short and blunt.

Pleopod 1 exopod broadly oval, operculate.

Uropod exopod broadly leaf-shaped, inner margin proximally with a right-angled bend marked by short spine, inner margin dentate, slightly longer than basis, not reaching telsonic apex; basis with strong dorsal ridge, triangular in cross-section; endopod triangular, extending beyond telsonic apex.

Telson tapering gently, but distal quarter tapering more acutely; single statocyst situated near base.

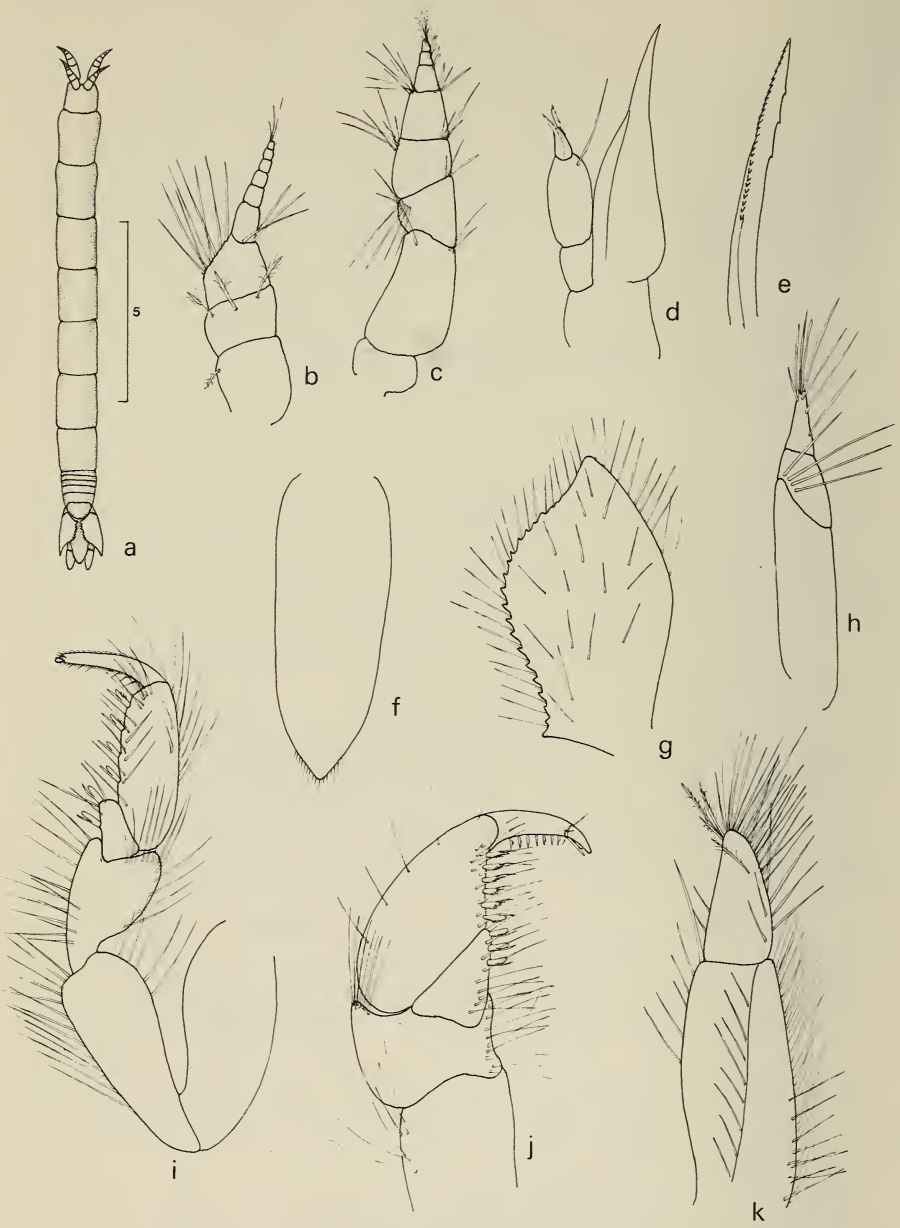

Fig. 16. *Leptanthura urospinosa* sp. nov.

a. ♀, dorsal view; b. antennule; c. antenna; d. mandible; e. maxilla; f. telson; g. uropodal exopod; h. maxilliped; i. peraeopod VII; j. peraeopod I; k. uropodal basis and endopod.

Material

Holotype	SAM–A13619	FAL.666.X–Y	♀	10,5 mm
Paratype	SAM–A13620	FAL.838.Z	♀	13,3 mm
		FAL.654.N–R	♀ ovig.	8,8 mm
			♀	9,6 mm
		FAL.442.K	3 ♀♀	8,5 mm
				6,4 mm
				6,0 mm
		SST.1.W	♀	5,4 mm
		SST.19.L	♀	8,0 mm
		SCD.310.B	♀	5,2 mm

Remarks

In several respects, *L. urospinosa* resembles the foregoing species, *L. agulhasensis*. These similarities include the mandible, maxilla, antennae, peraeopods I to VII, and the telson. The major difference is to be seen in the uropod exopods. In *L. agulhasensis* the exopod is a short lanceolate structure, while in *L. urospinosa*, this is a broadly oval structure, dentate on the inner margin, with the exopod of each side almost touching basally. The maxilliped of *L. agulhasensis* appears to have at least one segment more than in *L. urospinosa*, while the antennular flagellum of the latter species consists of six segments, of four to five segments in the former. The shape of the uropod exopod (except for its dentate inner margin) is similar to that of *L. tenuis*.

Katanthura laevitelson sp. nov.

Figs 17a–k

Description of ♀

Head and first six peraeonal segments of equal length, peraeonal segment VII very short; segments IV to VI with shallow transverse furrow anteriorly. Pleon slightly shorter than peraeonal segment VI. Pleonal segments distinct. Dorsal surface of pleon and peraeon bearing irregular brown reticulate pattern. Frontal margin of head with tiny rostral point; large well-developed oval eyes on antero-lateral corner.

Antennule shorter than antenna, basal segment twice length of 2nd segment, flagellum of 11 segments.

Antennal peduncle 5-segmented, 2nd segment widest and longest, flagellum of 20 segments.

Mouthparts adapted for piercing and sucking.

Mandibular palp 3-segmented, basal segment short, 2nd segment equal in length but narrower than 3rd, bearing single simple setae; 3rd segment bearing a single elongate fringed seta distally, plus row of 17 or 18 spines on outer margin. Mandible with piercing portion tapering, with single strong spine-like process, ensheathed by an apparently membranous structure.

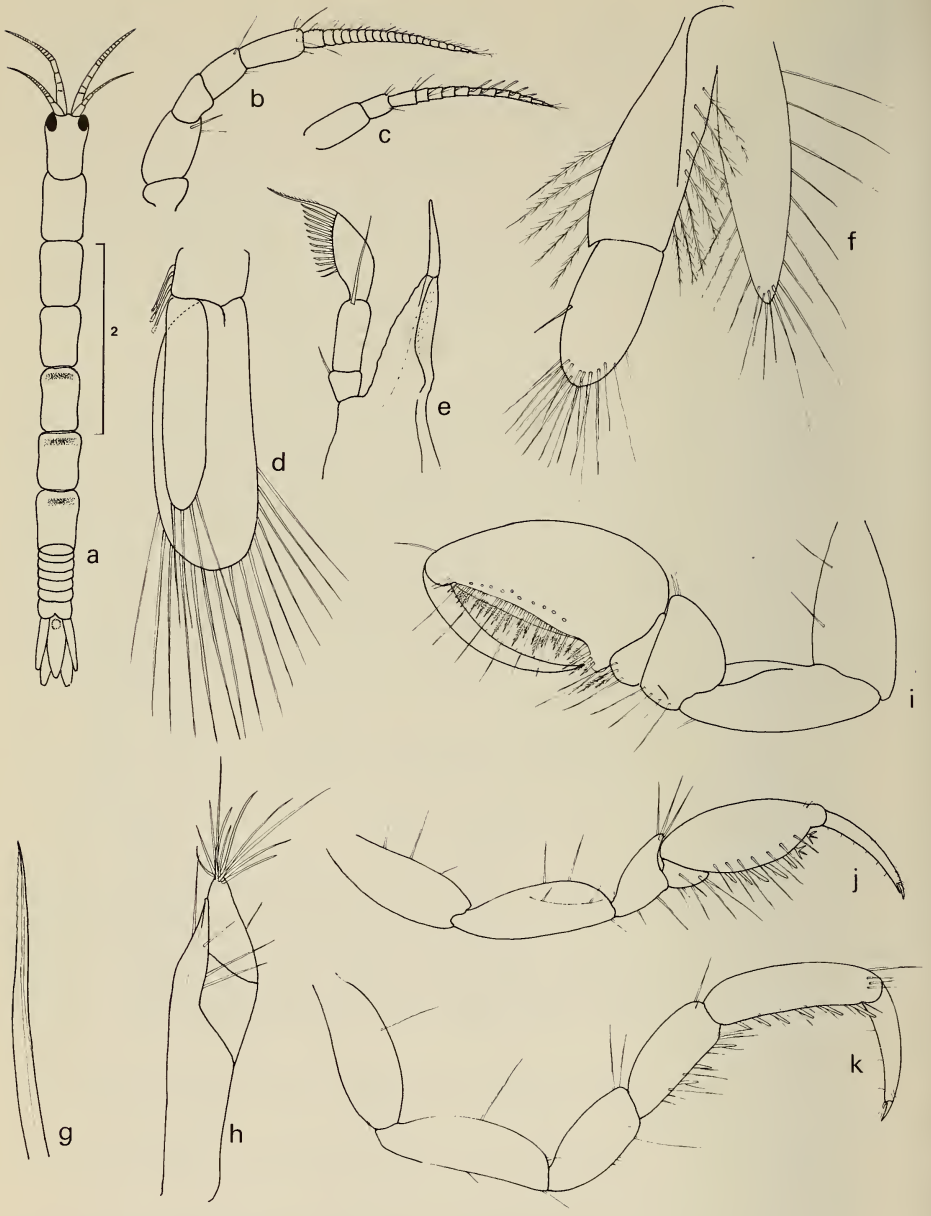

Fig. 17. *Katanthura laevitelson* sp. nov.

a. ♀, dorsal view; b. antenna; c. antennule; d. pleopod 1; e. mandible; f. uropod; g. maxilla; h. maxilliped; i. peraeopod I; j. peraeopod II; k. peraeopod VI.

Maxilla slender, harpoon-like, distally serrated on one margin, and with fine groove running length of the appendage, widening proximally.

Maxilliped of three segments; proximal segment slightly longer than two distal segments, with slender lobe-like extension on medio-distal angle; terminal segment tapering to narrowly-rounded apex with cluster of about 13 slender setae.

Peraeopod I strong, subchelate, dactylus strongly curved, with no obvious unguis; propodus proximally broader than distally, palm only slightly curved, with row of more or less alternating long and short fringed spines, and scattered long setae; palm flanked by single row of fringed spines; base of palm with rounded lobe. Carpus short, triangular, merus with broadly rounded dorsal area; ischium and basis subequal, more elongate.

Peraeopod II with propodus not as strong or as wide as in peraeopod I; dactylus curved, with short unguis; propodus with row of seven spines on inner margin, two distal spines tripartite, proximal five spines having sensory tip.

Peraeopod III similar to II.

Peraeopods IV to VI with dactylus having distinct small unguis, propodus with five or six stout spines on inner margin, carpus with three spines on ventral margin. Peraeopod VII absent.

Pleopod 1 not operculiform, outer ramus elongate, distally broadly rounded, about three times width of inner ramus, with several distal plumose setae; inner ramus narrow, not curved.

Pleopod 2 with outer ramus only slightly longer than inner.

Uropod with exopod longer than basis, slender lanceolate, apically narrowly rounded, with numerous setae; endopod twice longer than wide, apically rounded with numerous setae, extending beyond telsonic apex.

Telson elongate, tapering gently to point, bearing distal setae, large median proximal statocyst, but no sculpture.

Material

Holotype	SAM–A13552	SST.47.K	♀	6,4 mm

Remarks

The genus *Katanthura* was defined by Nierstrasz (1941) for *K. barnardi* from the Solar Straits. It has the following characteristics, recorded by Barnard (1925):

Mouthparts modified for piercing and sucking.
No statocyst in telson.
Carpus of peraeopods IV to VI not underriding propodus.
Maxilliped 4-segmented.
Peraeonal segment VII very short, lacking peraeopods.

The male is not known. Nierstrasz based his description on a single female, as is done in the present case. The specimen described here is so well preserved

and so markedly different from the female of *K. barnardi* that it is described as a new species.

The differences between the two species of *Katanthura* are given in the following table.

	K. barnardi	*K. laevitelson*
Mandibular palp	Terminal segment with 2 rows of spines, no elongate spine	One row of spines, one elongate spine
Maxilla	Possessing free lancets	No free lancets
Antennule	Flagellum of 14 segments	Flagellum of 11 segments
Antenna	Flagellum of 22 segments	Flagellum of 20 segments
Peraeopod VI	Propodus with 3 (?) spines	Propodus with 6 ventral spines
Pleopod 1	Endopod distally curved	Endopod not curved
Telson	Bearing 6 weak ridges	Unsculptured
Statocyst	Absent	Present
Total length	14 mm	6,4 mm
Uropod	Relatively slender	Not as slender as *K. barnardi*

Agulanthura gen. nov.

Diagnosis

Mouthparts normal, not modified for piercing and sucking. Maxilliped 5-segmented. Third segment of mandibular palp shorter than 1st or 2nd. Eyes present. Unguis of peraeopod I long. Peraeopod II smaller than I. Carpus of peraeopods IV to VII not underriding propodus, but distally expanded, distal margin straight. Pleopod 1 operculiform. Pleonal sutures indistinct in male and female. Stylet on pleopod 2 of male slender, acute. Exopod of uropod folding over telson. Latter lanceolate, dorsally convex, with two statocysts at base.

Type species of the genus: *Agulanthura serenasinus.*

Agulanthura serenasinus sp. nov.

Figs 18a–o

Description of ♂

Body elongate, head half length of peraeonal segment I. Peraeonal segments subequal in length, each segment about twice as long as wide. Pleonal segments indistinct, apparently fused, except segment 6 which is free. Segmental part of pleon equal in length to telson.

Antennule shorter than antenna, three basal peduncular segments short, flagellum consisting of 10 segments each bearing numerous short setae.

Antennal peduncle with basal segment longest, slightly longer than 2nd and 3rd segments together, 4th segment slightly longer than 3rd; flagellum with six segments each with disto-ventral tuft of about 10 setae.

Mandibular palp 3-segmented, basal and 2nd segments equal in length, each with single distal fringed seta, terminal segment shortest, with five distal spines; incisor process bearing bluntly rounded irregular teeth.

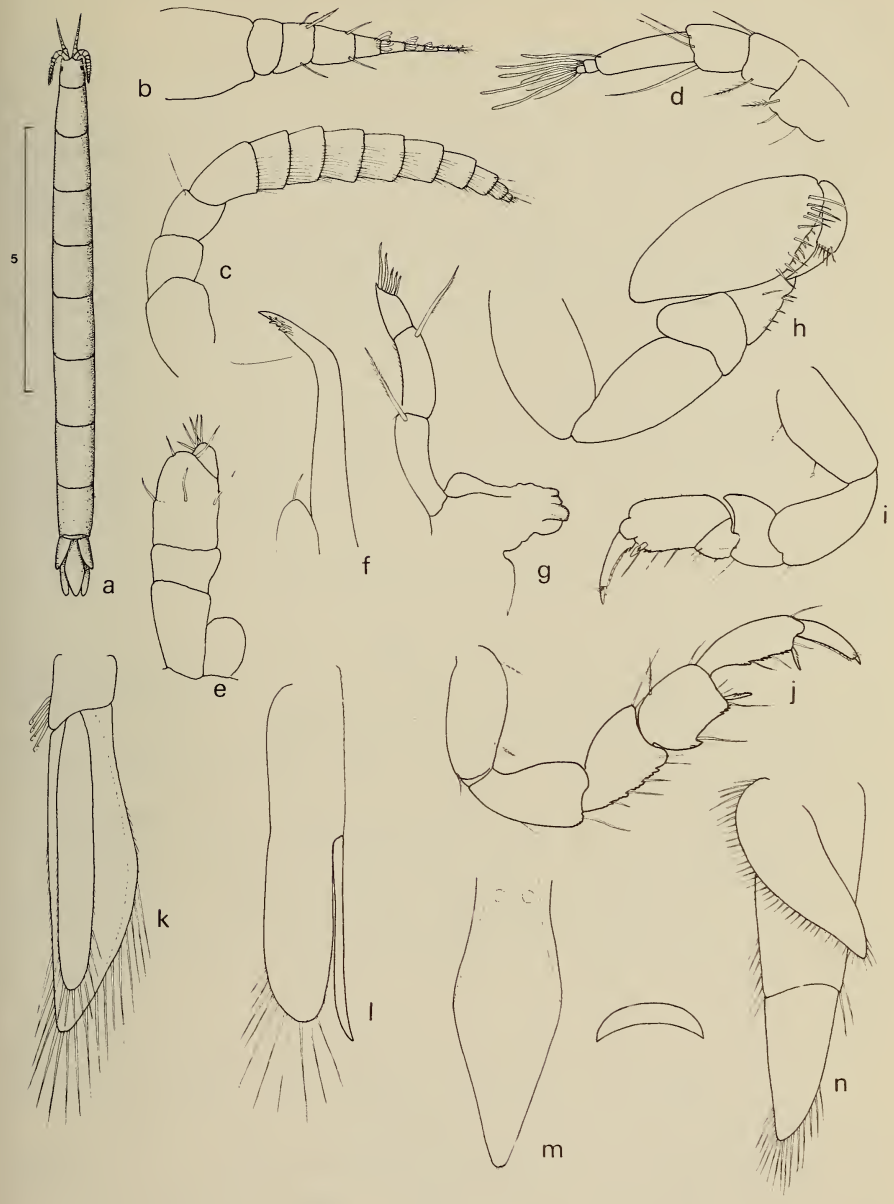

Fig. 18. *Agulanthura serenasinus* sp. nov.

a. ♂, dorsal view; b. antennule; c. antenna ♂; d. antenna ♀; e. maxilliped; f. maxilla; g. mandible; h. peraeopod I; i. peraeopod II; j. peraeopod VII; k. pleopod 1 ♂; l. pleopod 2 ♂; m. telson, with cross-section; n. uropod.

Maxilla slender, distally curved, tapering to point, with four or five subterminal spines.

Maxilliped 5-segmented, terminal segment set obliquely on penultimate segment, bearing five distal setae; 2nd segment three times length of 3rd, latter half length of 4th segment.

Peracopod I longer and stouter than II, unguis almost same length as rest of dactylus, gently curved; propodus three times longer than wide, palm sinuous, flanked by irregular row of 15 spine-like setae; carpus triangular, with seven or eight setae; ischium and basis subequal in length.

Peraeopod II dactylus with very short unguis, slightly curved, with ventral groove flanked by membranous flange; propodus twice as long as wide, disto-ventral corner with two short spines, plus short spine bearing accessory spinules; carpus small, triangular.

Peraeopods IV to VII with dactylus slightly shorter than propodus, gently curved, ventrally serrate, unguis very short; propodus twice width of dactylus, bearing several short spines disto-ventrally, plus strong blunt spine bearing accessory spinules; carpus almost square, distal margin not underriding propodus but straight, disto-ventral corner serrate, bearing strong blunt spine; ventral margin bipartite, proximal portion defined by few serrations and very short spines; merus equal in length to carpus, ventral margin with three equally-spaced groups of serrations.

Pleopod 1 outer ramus operculiform, median margin straight, outer margin evenly convex, bearing elongate distal plumose setae; inner ramus lying ventral to outer ramus, half width of outer, and slightly shorter.

Pleopod 2 rami subequal in length, tipped with plumose setae, stylet slender, elongate, apically acute.

Telson lanceolate, widest at midpoint, tapering to narrowly-rounded apex with proximo-lateral ridge covered by closely adpressed exopod of uropod.

Uropod endopod slightly shorter than telson, tapering evenly to narrowly rounded apex; basis medially hollowed to accommodate telson; exopod narrowly leaf-shaped, curved dorsally over, and adpressed to telson; margin fringed with plumose setae.

Description of ♀

Antennule longer than antenna, basal segment equal in length to following three segments, median face hollowed to accommodate antenna, flagellum of six segments, each with distal cluster of setae.

Antenna with three basal peduncle segments subequal, stout, 4th segment more elongate, flagellum reduced, consisting of only two tiny segments.

All appendages with exception of pleopod 2 as in male.

Material

Holotype	SAM–A13553	FAL.487.F	♂	11,0 mm
Allotype	SAM–A13554	FAL.685.B–D	♀	14,5 mm

Paratype	SAM–A13621	SCD.329.R	♀	13,0 mm		
Paratype	SAM–A13622	SB.310.S	♀	14,0 mm		
Paratypes	SAM–A13623	SST.74.G	3 ♀♀	12,9 mm	7,1 mm	6,9 mm
			♂	11,0 mm		

Single female specimens from SST.67.S, SCD.188.P, FAL.763.R–S, FAL.496.L, FAL.685.B–D, FAL.666.X–Y, FAL.654.N–R, 6,0 mm–12,3 mm.

Remarks

Agulanthura serenasinus has several features in common with species of *Haliophasma*. These include the unsegmented pleon, the 5-segmented maxilliped, operculiform pleopod 1; also, the carpi of the posterior peraeopods do not underride the propodi. Several other features in combination, however, seem to indicate the separation of the present species into a new genus. These features include the feebly developed eyes, the uropod exopod which is closely adpressed to the telson, the proximo-laterally ridged telson, the long unguis of the dactylus of peraeopod I, the square-ended carpus of peraeopod VII, and the uninterrupted body profile of the animal.

Holoroanthura capensis sp. nov.

Figs 19a–l, 20a–c

Description of ♀

Head shorter than peraeonal segment I, having slight rostral point. Eyes absent. Peraeonal segments I to IV gradually increasing in length, segments V and VI subequal, segment VII slightly shorter. Pleonal segments distinct, together equal to VIth peraeonal segment in length. Dorso-lateral ridges distinct only on anterior two peraeonal segments.

Antennule slightly shorter than antenna, consisting of three peduncle segments, and 4-segmented flagellum tipped with two aesthetascs.

Antennal peduncle 4-segmented, flagellum 7-segmented.

Mandible with incisor portion consisting of upper chitinised portion of three teeth, and five weakly chitinised teeth, separated from a blunt tooth by a row of tiny denticles; palp 3-segmented, terminal segment short, bearing three distal spines, middle segment twice length of basal segment. Maxilla moderately stout, distally curved with one strong and four or five smaller spines.

Maxilliped slender, 1st free segment three to three and a half times longer than wide, with digitiform extension at medio-distal angle; 2nd and 3rd segments subequal, 4th segment half length of 3rd, terminal segment tiny.

Peraeopod I no different in size from peraeopod II, unguis one-third length of dactylus; palm of propodus bearing three setae; carpus triangular, ventro-distal extension forming thumb, but not as marked as in following two pairs of peraeopods.

Peraeopods II and III with thumb-like projection of carpus well developed,

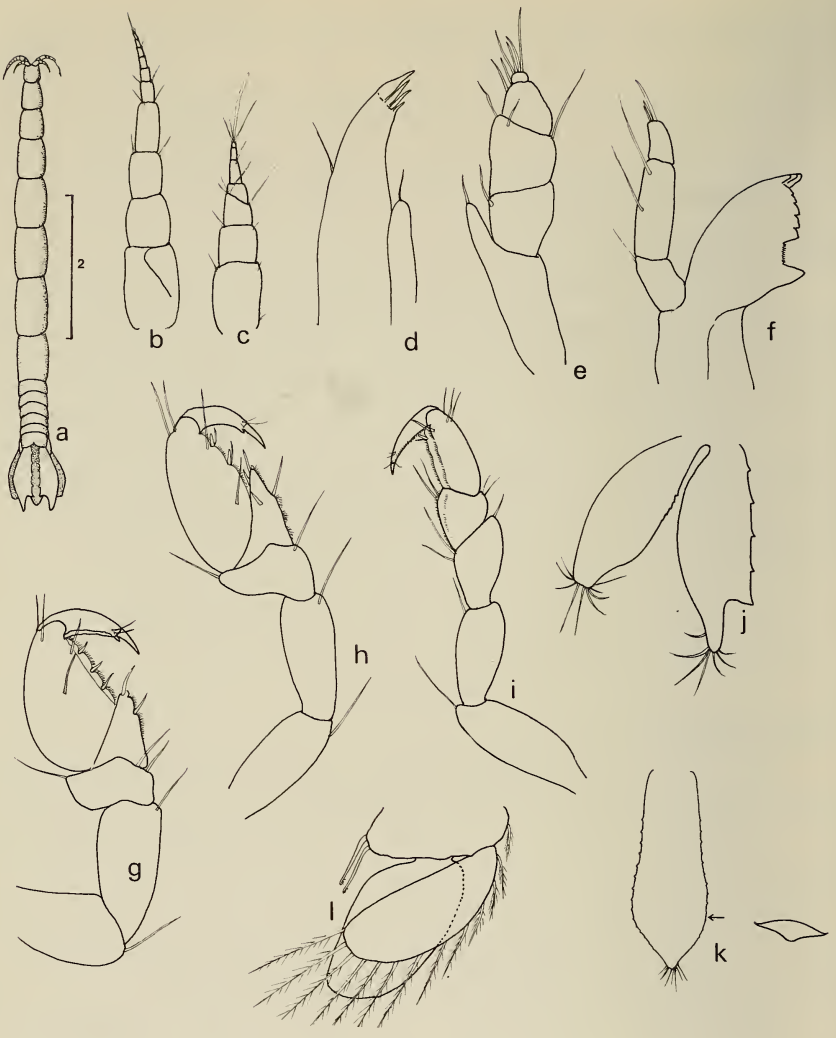

Fig. 19. *Holoroanthura capensis* sp. nov.

a. ♀, dorsal view; b. antenna; c. antennule; d. maxilla; e. maxilliped; f. mandible; g. peraeopod I; h. peraeopod II; i. peraeopod VII; j. uropod; k. telson, with cross-section at level of arrow; l. pleopod 1.

bearing two setae and short terminal blunt spine; palm of propodus armed with two spines.

Peraeopods IV to VII with carpus triangular, underriding propodus; three distal segments bearing ventral fringe of very fine setules.

Pleopod 1 not operculiform, similar to following pleopods, rami subequal in length, fringed with long plumose setae.

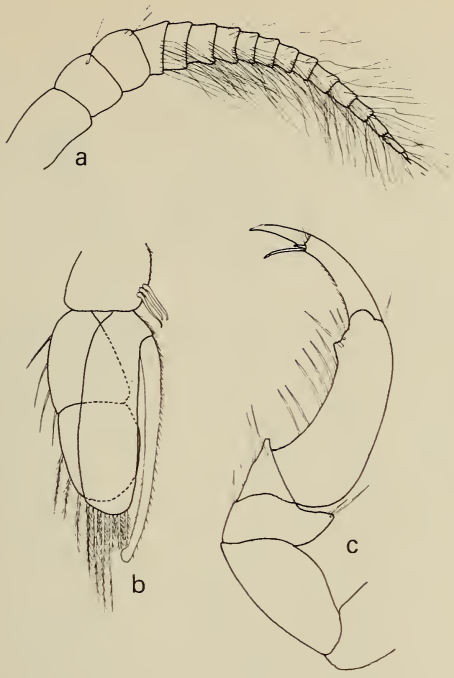

Fig. 20. *Holoroanthura capensis* sp. nov. ♂.
a. antenna; b. pleopod 2; c. peraeopod I.

Uropods and telson indurated, slightly splayed. Endopod of uropod almost twice length of basis, apically truncate, bearing few denticles proximally; outer margin of exopod sinuous, ending in narrowly rounded lobe, inner margin straight, bearing four to six denticles, ending in strong triangular tooth well separated from distal narrow lobe.

Telson margins serrate, distally lanceolate, with strong medio-ventral rounded ridge.

Description of ♂

Antenna consisting of three peduncular segments, basal one longest, plus flagellum of 13 to 14 segments bearing numerous fine setae.

Peraeopod I unguis one-third length of dactylus, latter curved; propodus with concave palm, bearing about 10 setae; carpus triangular, distally forming tiny thumb.

Pleopod 2 with slender slightly curved stylet on inner margin of endopod, extending well beyond endopod apex, apically blunt, rounded.

Material

Holotype	SAM–A13555	WCD.64.P	♂	3,8 mm
Allotype	SAM–A13624	LBT.72.K	♀	6,1 mm
Paratypes	SAM–A13625	WCD.109.A	♂	3,1 mm
			5 ♀♀	4,2–5,0 mm
		WCD.64.P	♀	4,0 mm
		WCD.111.J	♀	4,0 mm
		WCD.114.U	4 ♀♀	3,5–4,9 mm

Remarks

The present material agrees well with the generic definition of *Holoroanthura* Menzies & Frankenberg (1966: 41) which is characterized by the lack of eyes, the possession of normal biting mouthparts, a short unguis on peraeopod I of the female, the carpus of peraeopods IV to VII underriding the propodus, the maxilliped 5-segmented, and all pleonal segments distinct.

The type species of the genus, *H. irpex*, is represented by a single female recorded off Georgia, U.S.A. *H. capensis* differs in several respects from the American species. In the latter the telson is sharply pointed and not indurated, the spines on the exopods of the uropods elongate, and the inner margin of the endopod of the uropod as well as the telson margins are entire. In *H. capensis* the telson is broadly lanceolate (not sharply tapering) and indurated, the spines on the inner margin of the exopod of the uropod tiny, the inner margin of the uropod endopod and the telson margins finely denticulate. The basal maxilliped segment in *H. capensis* is more obviously lobed than in the American species.

Suborder FLABELLIFERA

Family **Cirolanidae**

Cirolana borealis Lilljeborg

Figs 21a–g

Cirolana borealis: Sars, 1897: 70. Hansen, 1905: 342. Richardson, 1905: 101. Schultz, 1969: 182. Riedl, 1970: 345.

Material

SAM–A13556	SST.57.A–B	♀	6,3 mm
SAM–A13557	SST.114.A–G	♀	damaged

Previous records

Atlantic coast of North America, eastern North Atlantic, Mediterranean.

Remarks

The present material agrees well with the above-mentioned descriptions. A very few differences with the northern species do exist. Unfortunately, no male

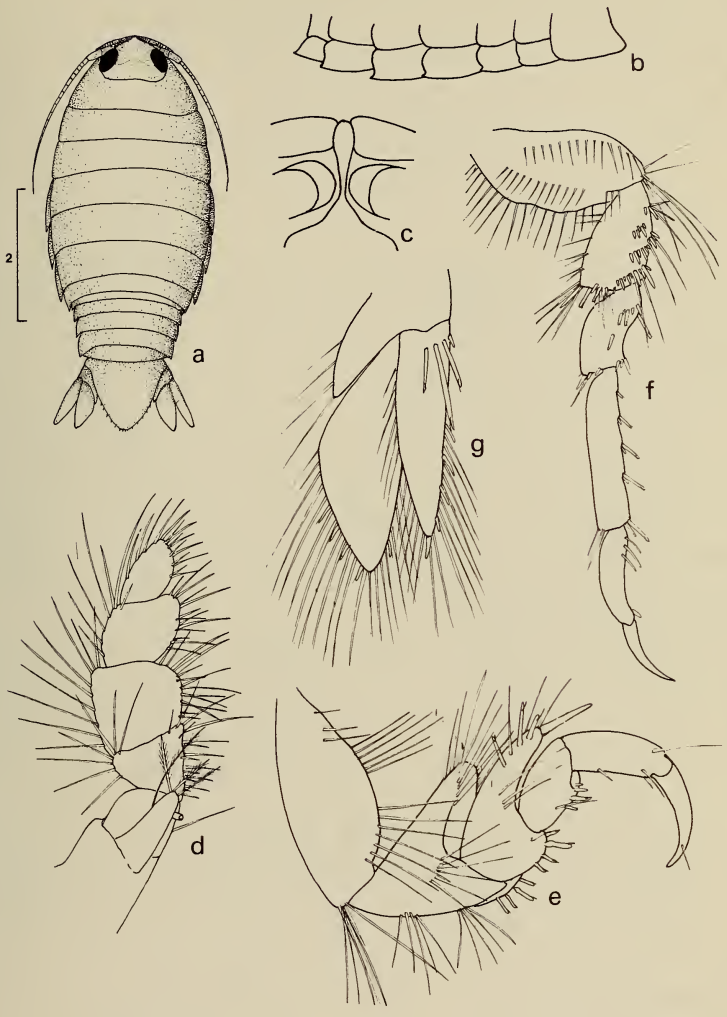

Fig. 21. *Cirolana borealis* Lilljeborg.

a. ♀, dorsal view; b. peraeonal epimeres; c. epistome; d. maxilliped; e. peraeopod I; f. peraeopod VI; g. uropod.

is available for comparison of pleopod structure. In the present material the epimeres are postero-ventrally acute and also have a tiny notch subterminally especially on epimeres III to VI. The northern species seems to lack this tiny notch. This feature may, however, be due to the immaturity of the specimens, as the species apparently matures sexually at about 12 mm length.

Cirolana obtusispina sp. nov.

Figs 22a–i, 23a–f

Description of ♂

Body two and a half times longer than wide, smooth, widest at peraeonal segment III. Head with impressed line joining posterior margins of eyes. Each peraeonal segment with transverse impressed line in posterior third. Pleo-telson triangular, tapering to subacute apex, with two submedian dorsal rounded longitudinal ridges, strongest proximally, becoming obscure distally. Epimeres II to IV rounded to quadrate. Epimeres V to VII becoming progressively more acute and elongate. Epimere of pleon segment 4 overlapping 5th. Epistome longer than wide, distally rounded, with slight lateral 'shoulders'. Antennule shorter than antenna, basal segment with ventral groove to accommodate basal segment of antenna; 3rd peduncular segment twice length of 2nd, flagellum 9–10-segmented. Antennal peduncle 5-segmented, two distal segments largest, flagellum of about 12 segments.

Mandibles with 3-segmented palp, terminal segment bearing 12–14 curved simple spines, middle segment with 12–14 serrate spines, molar process produced, with row of teeth on upper margin; incisor process with three strong chitinised teeth, and secondary cluster of six smaller spine-like teeth.

1st maxilla with outer ramus bearing 10 slightly curved spines, some of which are denticulate; inner ramus with three stout plumose setae.

2nd maxilla outer ramus bilobed, each lobe digitiform, bearing several plumose setae; inner ramus broadly rounded, bearing several plumose setae.

Maxilliped with 5-segmented palp, 3rd segment broad, 4th segment somewhat lobed on inner margin; endite about half width of basal lobe, tapering slightly distally, bearing four plumose setae, single very short blunt spine, and single coupling hook.

Peraeopod I dactylus with distinct unguis; propodus armed with three spines on ventral margin; carpus triangular, merus bearing five blunt knob-like modified spines, and three acute spines on ventral margin.

Peraeopod VII with propodus, carpus, merus, and ischium each bearing several simple and serrate spines on distal margin, plus pair of spines at midpoint of ventral margin.

Penial processes moderately elongate, digitiform.

Pleopod 1 with roughly rectangular basis bearing five coupling hooks; endopod one-third width of exopod, latter oval-round.

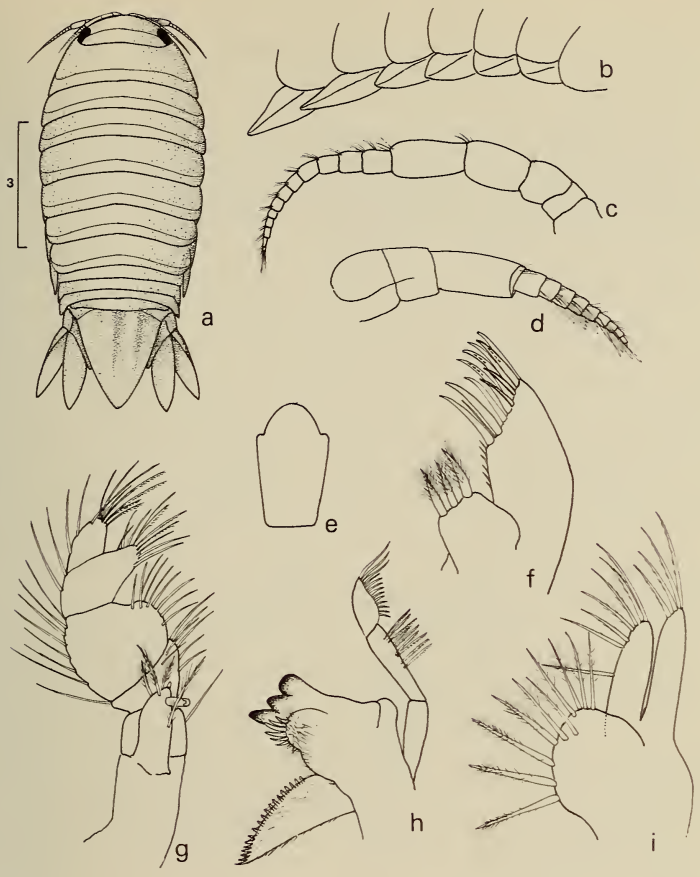

Fig. 22. *Cirolana obtusispina* sp. nov.
a. ♀, dorsal view; b. peraeonal epimeres; c. antenna; d. antennule; e. epistome; f. 1st maxilla; g. maxilliped; g. mandible; i. 2nd maxilla.

Pleopod 2 endopod bearing sabre-shaped stylet on inner margin, extending well beyond end of rami.

Uropod base produced on inner margin of inner ramus, latter with numerous setae and few spines; outer ramus lanceolate, shorter than inner, bearing several setae and two short spines on inner margin.

Material

Holotype	SAM–A13558	SST.19.N	♂	8,0 mm
Paratypes	SAM–A13559	SST.21.U	2 ♀♀	5,2 mm
				5,0 mm

Remarks

The present species is distinct as regards several features. These include the lack of dorsal sculpture, the 2-ridged pleo-telson, the form of the epistome, and the knob-like spines of the meri of peraeopods I to III. *Cirolana theleceps* Barnard, 1940 possesses a pleo-telson bearing two longitudinal ridges, but its denticulate distal margin, and also the shape and character of the uropods immediately distinguishes this species from *C. obtusispina.*

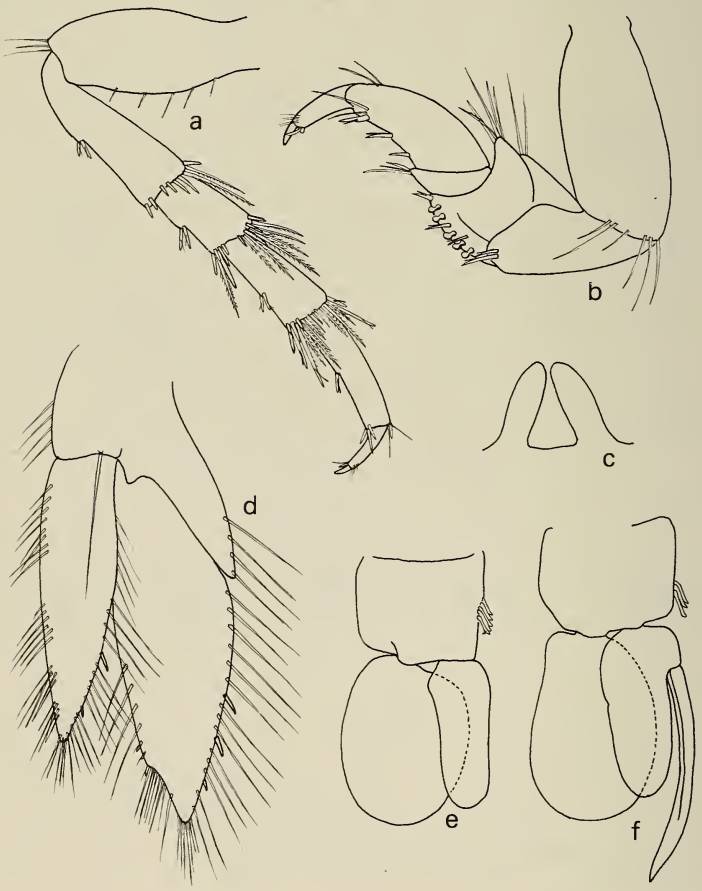

Fig. 23. *Cirolana obtusispina* sp. nov.
a. peraeopod VII; b. peraeopod I; c. penial processes; d. uropod; e. pleopod 1 ♂; f. pleopod 2 ♂.

Family **Sphaeromatidae**

Cymodoce alia sp. nov.

Figs 24a–h, 25a–h

Description of ♂

Body about two and a half times longer than broad, dorsally strongly convex. Peraeonal segment I broader than II, ventrally expanded with anterior lobe running ventral to eye, dorsally with broad transverse groove just behind head, plus row of small granules near posterior margin, and two larger submedian granules. Peraeonal segments II to IV with narrow epimeres, each with tiny granules near posterior margin, and two larger submedian granules. Epimeres of segments V to VII broader than preceding segments; peraeonal segment VII overlapping anterior pleon dorsally, finely granular, hind margin with two prominent tubercles on each side. First three pleon segments granular, overlapped by VIIth peraeonal segment. Pleon segment 4 with two large conical submedian tubercles and smaller lateral tubercle. Pleo-telson with two large conical submedian tubercles, apex notched, trilobed, median lobe smaller and lower than lateral lobes.

Antennule with basal segment strongly chitinised, large, external face granular; 2nd segment one-quarter length of first, also strongly chitinised; 3rd segment slender, slightly longer than 2nd; flagellum of 11–12 segments.

Antennal peduncle of five segments, two distal segments longest; flagellum of 11–12 segments; base hidden by basal segment of antennule. Basal segments of antennule flanking and closely adpressed to epistome.

Mandible with incisor process strongly chitinised, cutting edge evenly rounded; molar process also chitinised; six spines between incisor process and lacinia mobilis; palp 4-segmented.

1st maxilla outer ramus with 10 curved spines, inner ramus with four fringed setae.

2nd maxilla with both lobes of exopod tipped with about eight curved serrated spines; endopod bearing 11–12 fringed setae.

Maxilliped palp with 2nd, 3rd, and 4th segments lobed, lobes tipped with setae.

Peraeopod I dactylus with short spine at base of strong unguis, propodus two and a half times longer than wide, with four spines on ventral margin, spines all apically trifid; carpus triangular, also bearing four trifid spines; merus with one short and five long spines.

Peraeopod VII more slender and somewhat longer than first three pairs of peraeopods; propodus twice length of dactylus, with four simple spines on ventral margin; ventral margins of propodus, carpus, and merus with thick pile of short setules.

Pleopod 1 with triangular endopod, shorter than exopod.

Pleopod 2 with endopod bearing elongate slender stylet.

Pleopod 3 exopod 2-segmented, endopod broad, median margin straight.

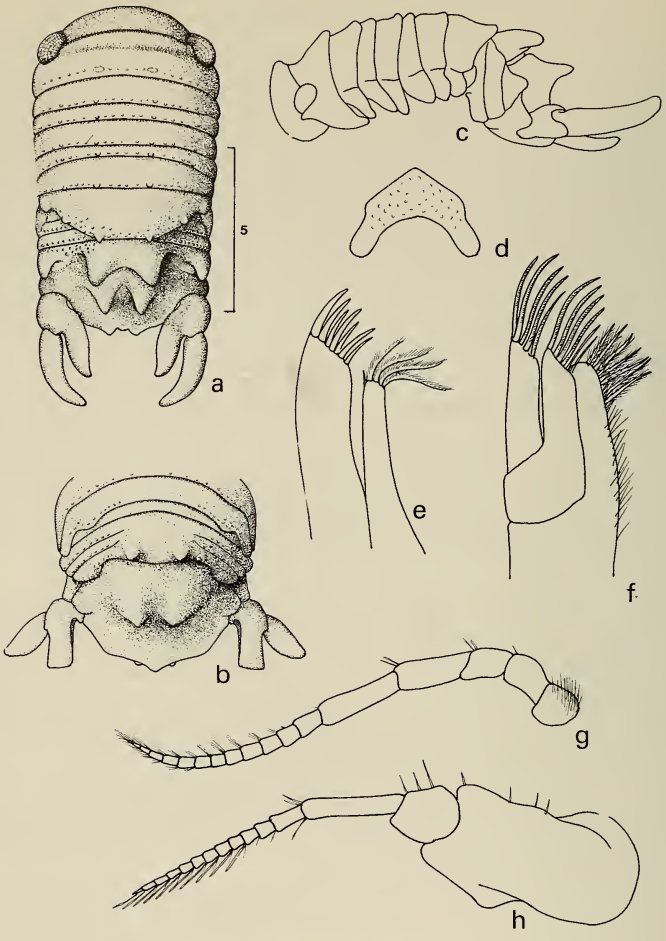

Fig. 24. *Cymodoce alia* sp. nov.
a. ♂, dorsal view; b. posterior peraeon and pleon ♀; c. ♂, lateral view; d. epistome; e. 1st maxilla; f. 2nd maxilla; g. antenna; h. antennule.

Pleopod 4 endopod with transverse pleats, apex with tiny lobe.

Pleopod 5 exopod bearing five spinule-bearing cushions, endopod bilobed, bearing transverse pleats.

Uropod with inner ramus fused to base, leaf-shaped, oval in cross-section, outer ramus longer than inner, curved towards midline, basally oval in cross-section, distally circular in cross-section, both rami bearing short setules.

Description of ♀

Not as granular as male, conical submedian process on 4th pleon segment and pleo-telson not as large as in male. Telsonic apex notched, trilobed, but

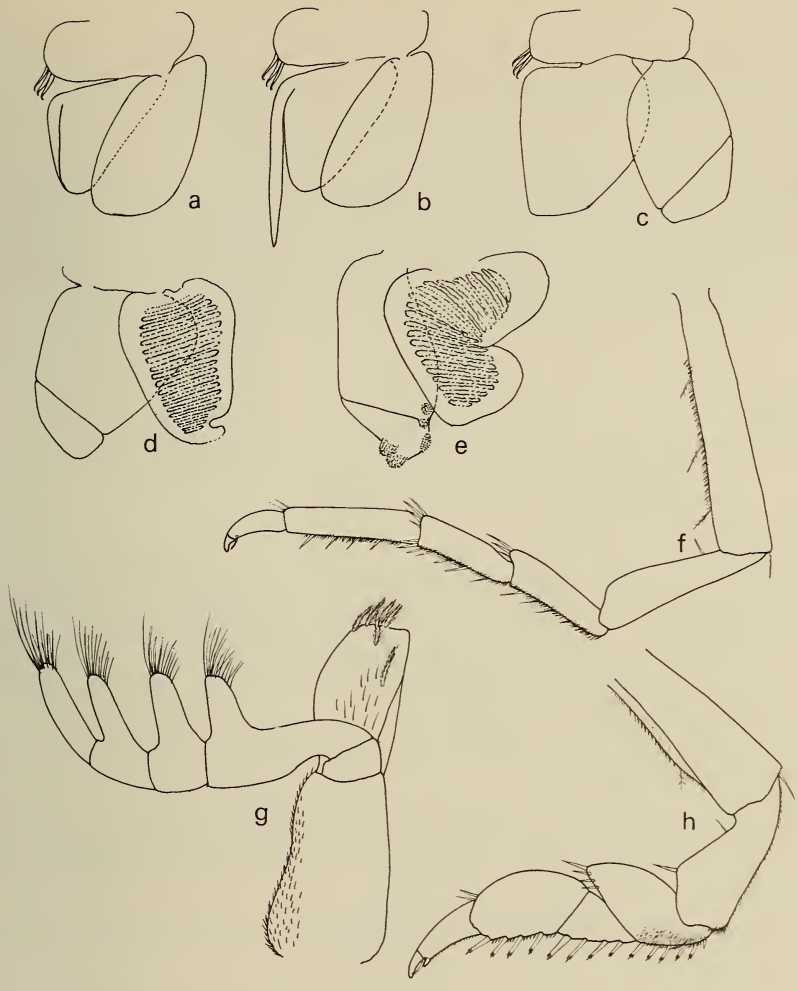

Fig. 25. *Cymodoce alia* sp. nov.
a. pleopod 1 ♂; b. pleopod 2 ♂; c. pleopod 3; d. pleopod 4; e. pleopod 5; f. peraeopod VII; g. maxilliped; h. peraeopod I.

curved ventrally. In dorsal view, median lobe longer than lateral lobes, latter just visible. Inner uropodal ramus distally quadrate, flattened, as long as outer ramus, latter leaf-shaped. Peraeonal segment VII not extending over pleon.

Material

Holotype	SAM–A13560	SST.21.S	♂	9,0 mm
Allotype	SAM–A13560	SST.21.S	♀ ovig.	8,5 mm
Paratypes	SAM–A13561	SST.21.S	♀	8,5 mm
		SST.17.A–B	♀ juv.	

Remarks

The following features are used to place the present material in the genus *Cymodoce*; hemibranchiate pleopods, pleo-telsonic apex notched in both sexes. maxillipedal segments lobed, both uropodal rami well-developed, no medial process on pleo-telson, mouthparts sexually dimorphic.

The present species most closely resembles *Cymodoce amplifrons* Stebbing of the numerous South African representatives of this genus, in possessing a strong pair of conical processes on both the last pleon segment and on the pleo-telson. The nature of the uropods and the trilobed medial lobe of the pleo-telson in the male of Stebbing's species, distinguish it from the present species.

Cymodoce velutina sp. nov.

Figs 26a–k, 27a–e

Description of ♂

Body about twice longer than wide, dorsally strongly convex. Most of dorsal surface of head, peraeon, pleon, and pleo-telson covered with tiny delicate membranous scale-like structures, with stout apically bifid seta arising from base of each. Pleo-telson smoothly convex, apex notched, trilobed, median lobe slightly longer than lateral lobes.

Antennular peduncle 3-segmented, basal segment strongly chitinised, flagellum 11–12-segmented.

Antennal peduncle 5-segmented, distal segment longest; flagellum 10-segmented. Mandible with strongly-chitinised incisor process having straight edge, tridentate lacinia mobilis; molar process broad, bristle-covered; palp 3-segmented.

1st maxilla outer ramus with about 10 curved spines, inner ramus with four apical fringed setae.

2nd maxilla with both lobes of exopod tipped with curved serrate spines, endopod bearing about six fringed setae.

Maxilliped palp with 2nd, 3rd, and 4th segments lobed, lobes tipped with setae. Peraeopod I shorter than following peraeopods, dactylus with short spine at base of strong unguis, propodus, carpus, and merus each carrying four fringed spines, ischium with numerous fine setae on ventral margin. Following peraeopods similar to I, but with meri and bases somewhat longer.

Penial processes slender, elongate, apically slightly broadened.

Pleopod 1 endopod about half width of exopod.

Pleopod 2 with stylet on endopod extending beyond apex of ramus, slender, apically slightly hooked.

Uropod with inner ramus apically truncate, outer ramus about half length of inner, leaf-shaped.

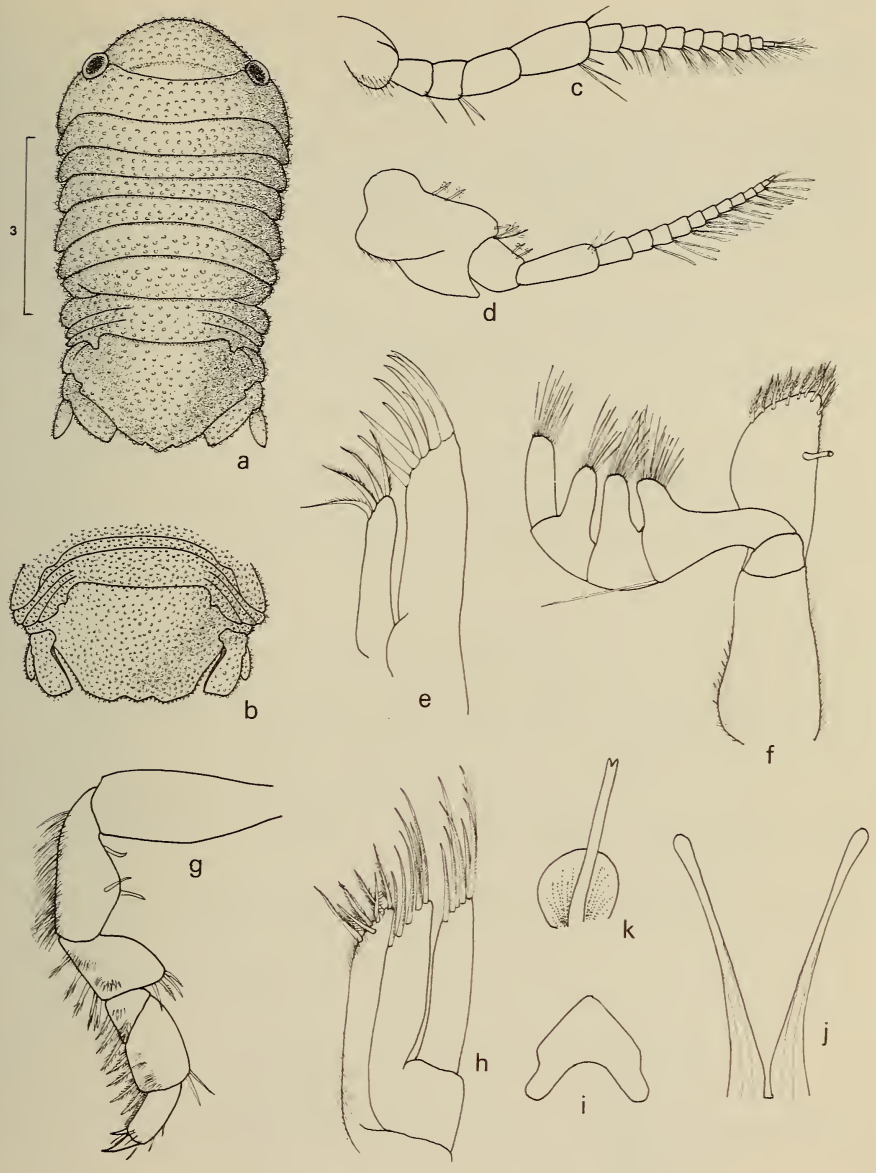

Fig. 26. *Cymodoce velutina* sp. nov.

a. ♂, dorsal view; b. ♀, pleo-telson dorsal view; c. antenna; d. antennule; e. 1st maxilla; f. maxilliped; g. peraeopod I; h. 2nd maxilla; i. epistome; j. penial processes; k. one scale and seta.

Description of ♀

Very similar to male, pleo-telson slightly broader, apex trilobed, lobes subequal.

Material

Holotype	SAM–A13629	FAL.700.R–T	♂	5,9 mm
Allotype	SAM–A13562	SST.20.Z	♀ ovig.	8,0 mm
Paratypes	SAM–A13630	FAL.700.R–T	3 ♂♂	6,0–6,9 mm

Remarks

The unmistakable body covering of this species is not found in any of the other southern African species of *Cymodoce*, nor in any of the exotic species. The unsculptured pleo-telson with trilobed apex is also distinctive.

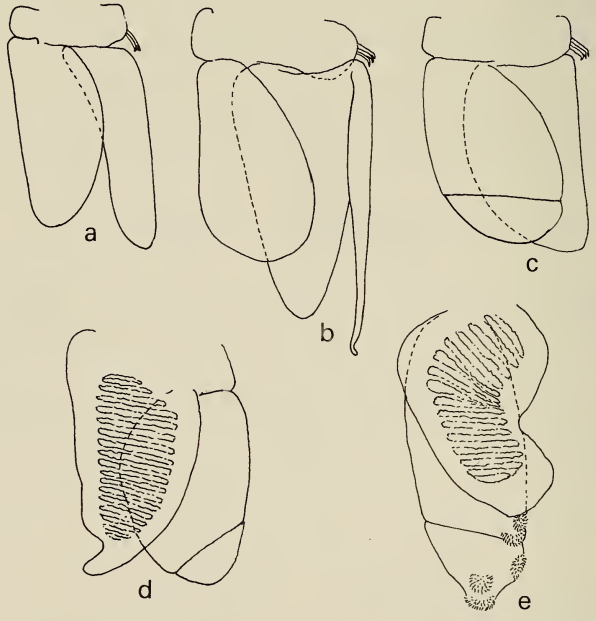

Fig. 27. *Cymodoce velutina* sp. nov. ♂.
a. pleopod 1; b. pleopod 2; c. pleopod 3; d. pleopod 4; e. pleopod 5.

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